APRIL 1992

Independent Cleanup Action Report, Former No. 1 Cell Room Diffuser Removal

Chlor-Alkali Plant
LONGVIEW, WASHINGTON

PREPARED FOR

Weyerhaeuser

PREPARED BY

CH2M HILL

Independent Cleanup Action Report
Former No. 1 Cell Room Diffuser Removal

Prepared for
Weyerhaeuser Chlor-Alkali Plant
Longview, Washington

Prepared by
CH2M HILL
Portland, Oregon

April 1992

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Introduction

This report documents the independent activities regarding removal of the former No. 1 Cell Room diffuser at the Weyerhaeuser Chlor-Alkali Plant in Longview, Washington. Site activities occurred from March 5 through March 19, 1992. Underwater activities for the rigging and the removal of the diffuser took place March 6 and 9, 1992, respectively. Contractors who participated in project activities included Advanced American Diving Services (AADS), CH2M HILL, Columbia Analytical Services (CAS), Columbia Consulting Team (CCT), Chemical Waste Management (ENRAC), and King's Crane.

Background

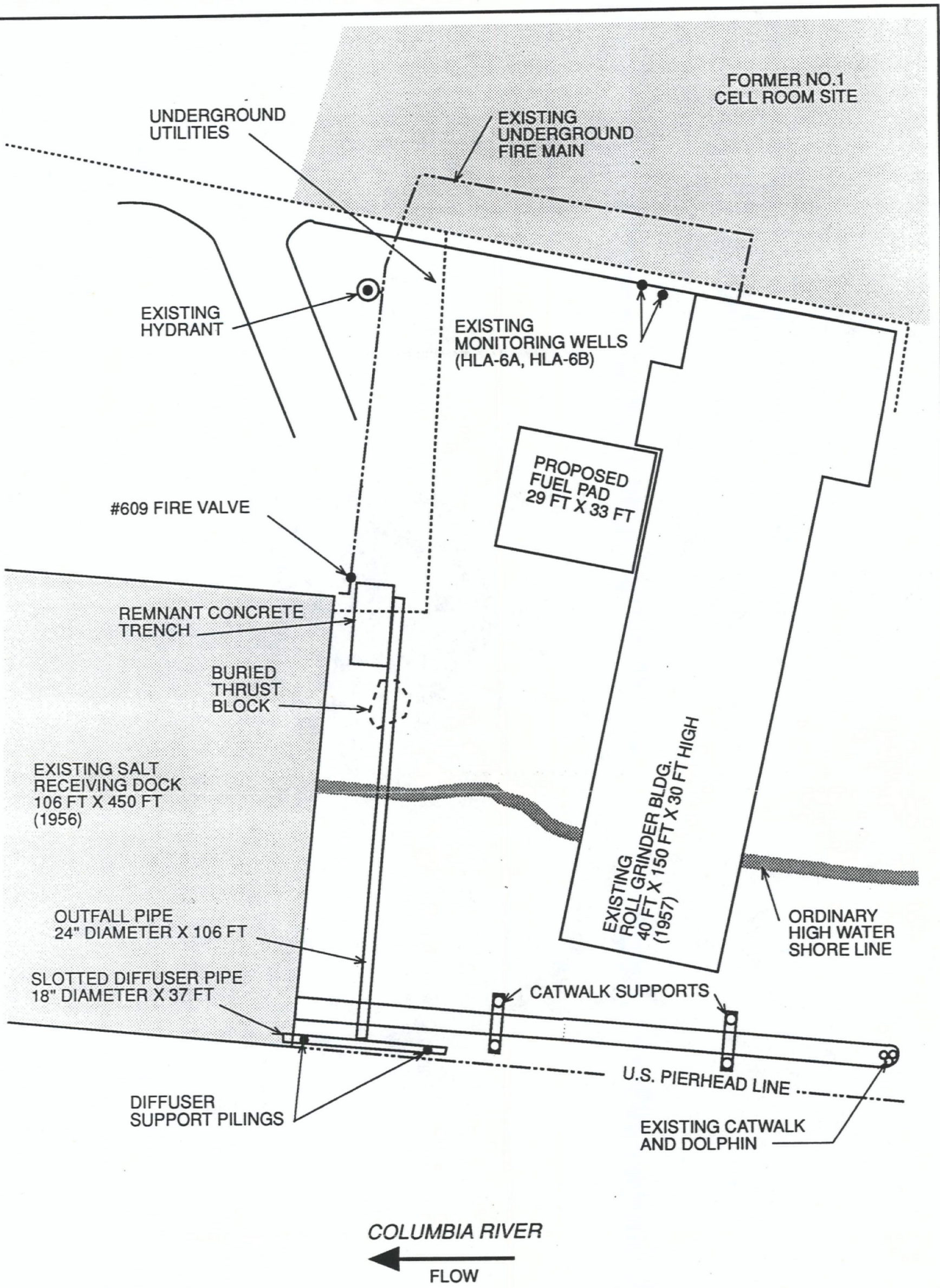
In 1958, the Weyerhaeuser Company began operating its Chlor-Alkali Plant in Longview to produce chlorine and sodium hydroxide (caustic) for the company's pulp and paper mills. Production took place in the No. 1 Cell Room, where the electrolytic mercury cell process was used.

From 1958 to 1966, effluent from the No. 1 Cell Room flowed through a series of sumps and trenches to the end of an outfall trench at the top of the riverbank. Effluent was gravity-fed from the end of the outfall trench over riprap to the Columbia River. According to plant personnel, concrete was added around the trench and over the riprap to direct the effluent to the river's edge.

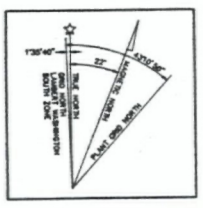
In 1966, a diffuser (which included an outfall pipe and diffuser pipe) was installed to convey effluent directly into the river. The end of the outfall trench was sealed off with concrete and the effluent was diverted into the outfall pipe. The diffuser pipe, affixed to two wooden pilings, rested on the bottom of the river. As part of this construction, a large concrete thrust block was installed around the outfall pipe to prevent movement of the diffuser. Riprap was placed on top of the pipe and the thrust block (see Figures 1 and 2).

In 1976, the No. 1 Cell Room discontinued operation and the diffuser was sealed off and abandoned. In June 1990, demolition began on the No. 1 Cell Room building. Work continued on this nearly 2-acre site through October 1991, when the site was closed under an Agreed Order with the Washington Department of Ecology (Ecology). The demolition process included removal of the sumps and approximately 100 feet of trench to the edge of the diffuser area. Only the diffuser and an attached remnant of the outfall trench remained.

In December 1991, permit applications to remove the diffuser were sent to Ecology, the Washington State Department of Fisheries, Cowlitz County Department of Community Development, and U.S. Army Corp of Engineers. Permit applications listed the following work activities:



Source: Permit application for diffuser removal and diesel tank relocation, Weyerhaeuser Company, December 3, 1991.



SCALE APPROXIMATE
1" = 25'

FIGURE 1
Former No. 1 Cell Room
Abandoned Diffuser
WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

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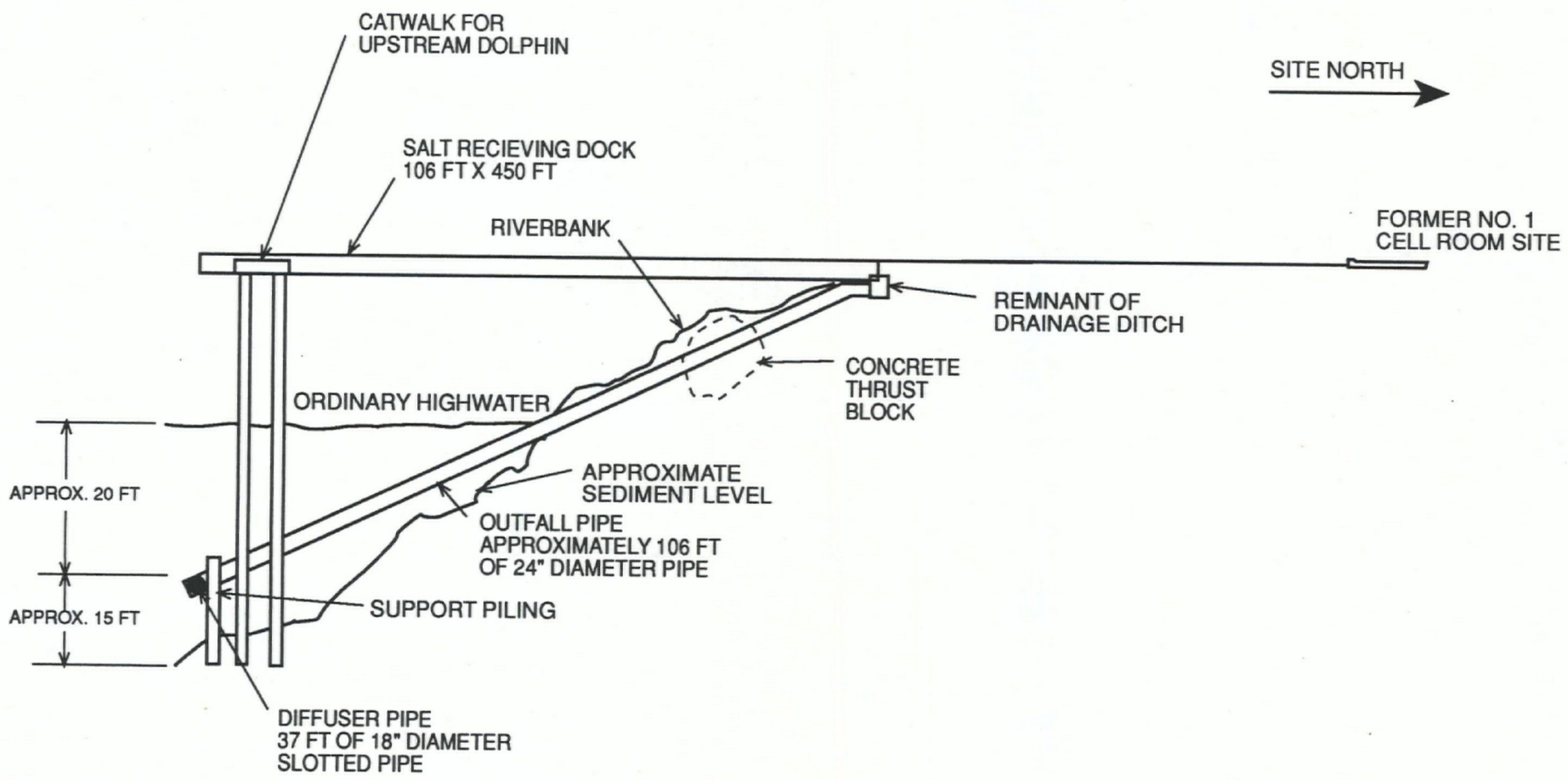

Source: Permit application for diffuser removal and diesel tank relocation, Weyerhaeuser Company, December 3, 1991.

SCALE APPROXIMATE
1" = 25'

FIGURE 2
Former No. 1 Cell Room
Abandoned Diffuser (Side View)
WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

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- Removing the abandoned diffuser in the Columbia River in an environmentally prudent manner
- Installing a permanent concrete containment area for a new, double-walled, aboveground diesel storage tank
- Grading and paving the immediate vicinity around the diesel storage tank pad for drainage of rainwater
- Replacing the riprap on the riverbank

Permits were granted in 1992 from Cowlitz County—Environmental Affairs, Ecology—Industrial Section, Ecology—Shoreline Section, and the Department of Fisheries (see Appendix A) for restricted riverbank activities to commence after March 5 and be completed by midnight on March 22, 1992.

The purpose of this report is to document the process of removing the abandoned diffuser and soil on the riverbank. This report is submitted to Ecology, as required by the Model Toxics Control Act (MTCA) and as defined in Washington Administrative Code (WAC) 173-340-300 (4).

Project Objectives

The original project objectives, as defined in the permit applications, and listed in Appendix A, were adhered to as the project progressed to completion. The objectives for the diffuser removal process were as follows:

- Sample the soil above the outfall pipe along the riverbank and the sediment below the diffuser in the Columbia River before diffuser removal.
- Excavate soils to expose the diffuser, remove remnants of the concrete outfall trench and concrete thrust block, and detach the diffuser from pilings located in the river.
- Attach a spreader bar to the outfall and diffuser pipe. Weld lifting eyes and attach cables to the diffuser. Use two cranes to prepare for removal.
- Lift the diffuser from the river and position on the fabricated containment area located on the salt dock. Cut the diffuser into sections for disposal.
- Sample sediment on the river bottom beneath the diffuser, and sample the soil on the riverbank.

- Excavate the soils along the riverbank until the 24 milligrams per kilogram (mg/kg) MTCA Method B cleanup level for mercury is achieved.
- Rebuild the riverbank with clean riprap in the location of the former diffuser.
- Dispose of all contaminated material at Chemical Waste Management's Class I Hazardous Waste disposal facility in Arlington, Oregon.

Site Description

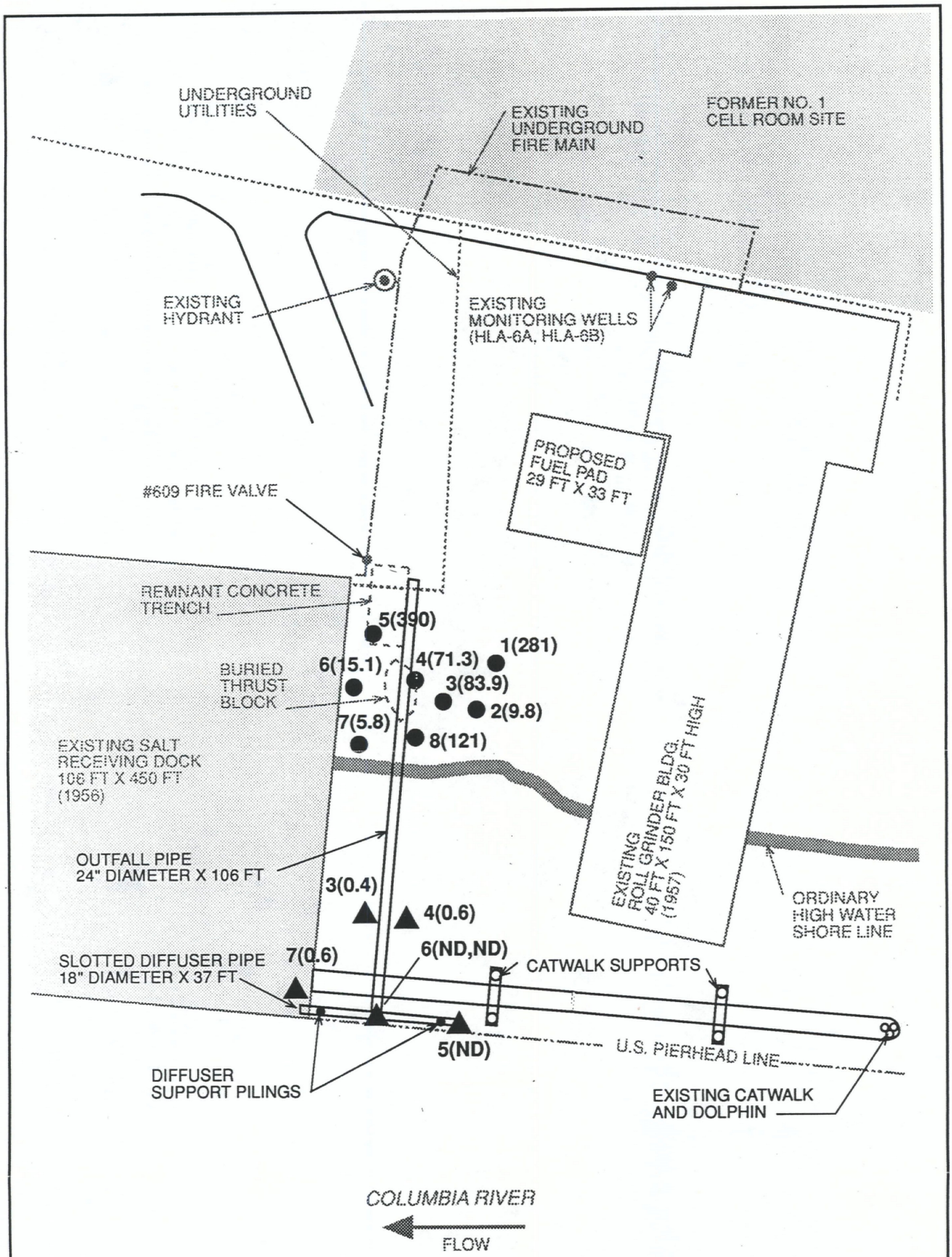
The diffuser area is bound on the north by the former No. 1 Cell Room site, on the south by the Columbia River, to the east by the Roll Grinder building, and to the west by the Salt Dock (Figure 1). Material in the area consisted of rock, concrete, and soil fill. When the diffuser was constructed, it was affixed to two wooden pilings that were driven into the river bottom. Dredging occurred in this area nearly every year prior to the eruption of Mt. St. Helens. After the Mt. St. Helens eruption, massive dredging occurred in the Columbia River, the navigational channel was narrowed and deepened, and routine dredging became less frequent. The deepening of the river resulted in the diffuser being approximately 15 feet above the river bottom (Figure 2).

Preparation and Removal of the Diffuser

In January 1992, CH2M HILL collected soil samples along the riverbank to determine if any soils contained mercury. Eight samples were collected and analyzed by Columbia Analytical Services (CAS) for total mercury using Environmental Protection Agency (EPA) Method 7471. The results indicated mercury concentrations ranging from 5.8 to 390 mg/kg, with an average of 122 mg/kg (Figure 3).

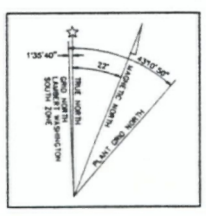
Initial inspection of the diffuser, performed by AADS, was conducted in February 1992. Metal thickness, pipe dimensions, and pipe conditions were investigated. Sediment was found in the diffuser pipe and cracks were found at the intersection of the outfall and diffuser pipes.

On March 5, 1992, AADS, King's Crane, and ENRAC mobilized to the job site, where AADS conducted a final inspection of the diffuser pipe. The cracks found at the intersection of the outfall and diffuser pipe were sealed with an underwater fiberglass material. The final inspection showed the integrity of the diffuser to be satisfactory for removal. Seven river sediment sampling sites were located. Because of riprap approximately 5 feet north of sample locations 3 and 4 (Figure 3), sediment samples 1 and 2 (as described in the Field Sampling Plan, Appendix B) could not be collected. The five sediment samples and one duplicate collected by AADS were transferred to CH2M HILL for handling. Sediment samples were analyzed by CAS using EPA Method 7471; results



SOIL SAMPLES COLLECTED BY CH2M HILL JANUARY, 1992
SEDIMENT SAMPLES COLLECTED BY CH2M HILL MARCH, 1992

Source: Permit application for diffuser removal and diesel tank relocation, Weyerhaeuser Company, December 3, 1991.



SCALE APPROXIMATE
1" = 25'

4(71) ● INITIAL SOIL SAMPLE LOCATION, IDENTIFIER, AND MERCURY CONCENTRATION (mg/Kg)

▲ INITIAL SEDIMENT SAMPLE LOCATION IDENTIFIER AND MERCURY CONCENTRATION (mg/Kg)

ND BELOW METHOD DETECTION LIMIT (0.2mg/Kg)

FIGURE 3
Initial Soil and Sediment Sample Results Before Abandoned Diffuser Removal
WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

CH2M HILL

indicated a range of mercury concentrations from below the method reporting limit (MRL) of 0.2 to 0.6 mg/kg, with an average of 0.4 mg/kg (Figure 3).

King's Crane mobilized and set up a 70-ton crane at the southeast corner of the salt dock. The catwalk to the upstream dolphin was then temporarily removed to allow the crane access to the diffuser.

ENRAC mobilized at midday and set up the Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), Support Zone (SZ), and Decontamination Area. Additional work activities included locating underground utilities, confirming the location of the trench remnant, exposing the end of the diffuser, and starting to develop a riverbank accessway.

On March 6 a one-piece, T-shaped spreader bar was placed on the diffuser to provide structural stability during the lifting phase. The spreader bar measured 30 feet along the diffuser pipe and 10 feet along the outfall pipe. It was strapped into place with approximately ten 4-inch-wide straps.

Excavation along the riverbank continued adjacent to and above the diffuser system. The concrete thrust block and most of the remaining outfall trench were broken up and removed. Three soil samples were collected from beneath the remnants of the trench where the concrete had been removed. Samples were analyzed for total mercury; laboratory results indicated a concentration range of 16.4 to 39.6 mg/kg, with an average of 29 mg/kg. All man-made debris was removed from below the ordinary high water mark (OHM) and disposed of as required by the Department of Fisheries Hydraulic Permit (Item No. 4). At the end of the day's activities, a silt fence was installed slightly above the high water mark on the riverbank to prevent silt loss into the Columbia River.

On March 9, two lifting eyes were welded onto the outfall pipe to attach a cable to the upper end of the pipe. As required by the Department of Fisheries Hydraulic Permit (Item No. 3), time for removal of the diffuser from the Columbia River was limited to no more than 2 days. The diffuser was removed March 9, 1992. A crane at the southeast corner of the salt dock lifted the south end of the piping system, while another crane at the northeast corner of the salt dock lifted the north portion of the piping system. A hold-back line was connected to the east end of the diffuser pipe to pull the piping system out from underneath the salt dock. After the two support pilings were cut, the piping system at the south end was lifted slightly while the hold-back line was pulled to pivot the diffuser to the east in order to clear the salt dock. The north section of the piping system was lifted approximately 1 foot off the ground and held steady. As the diffuser cleared the salt dock, the south portion was lifted until the south end was above the north end of the system. This lifting strategy minimized solids and water loss from the diffuser into the Columbia River. When the diffuser was above water and tilted toward the riverbank, it was lifted above the salt dock, at which time the cranes rotated and lowered the piping on a fabricated containment area on the salt dock. The fabricated containment area consisted of 10-mil reinforced polyethylene plastic with an approximately 4-inch berm around the perimeter. According to the divers, there did not appear to be any solids loss

below the surface of the water. At the water surface, there did appear to be some suspended solids in the displaced water exiting the diffuser.

As required by Department of Ecology Water Quality Standards Permit (Item No. 9), soil beneath the outfall pipe was sampled. Immediately after the diffuser was removed, four samples were collected from soil that was in contact with the bottom of the pipe, and an additional three soil samples were collected 5 feet to the east of the outfall's route. Of these seven samples, results indicated mercury concentrations of 1.7 to 78 mg/kg, with an average of 37 mg/kg.

A rock and soil berm was constructed at the high water mark along the river's edge to prevent erosion of soils on the riverbank. A silt fence was also installed for erosion prevention.

Activities After Diffuser Removal

Activities after diffuser removal included final sediment sampling from the same locations where samples were taken prior to diffuser removal, an investigation to define any possible contamination along the riverbank, the excavation and disposal of soil containing mercury above 24 mg/kg, and rebuilding of the riverbank with clean material.

Final sediment sampling occurred on March 10, 1992. Five sediment samples and one duplicate were collected from the same locations as were the initial samples. Sampling procedures employed for final sampling were the same as those used during initial sampling. Laboratory results indicated mercury concentrations ranging from 0.3 to 7.2 mg/kg, with an average concentration of 2.1 mg/kg.

The riverbank was investigated using a rigorous sampling grid set up after the diffuser was removed. A total of 60 soil samples were collected from 38 sample locations within the excavated area from March 6 to March 18.

On March 10, the remnant of the concrete outfall trench and associated spillway was removed. In the process of removing this trench, approximately 2 feet of soil were removed from the area of the outfall pipe. The sampling grid was extended to include the expanded excavation area with 15 soil and 2 duplicate samples collected from 14 new sample locations. Laboratory results indicated a range of concentrations from 0.6 to 400 mg/kg, with an average of 66 mg/kg. The results indicated an average concentration of 3 mg/kg in the north end of the excavation. Additional samples were not collected from soil below or east of the outfall pipe's pathway, because results were not known from the samples collected March 9.

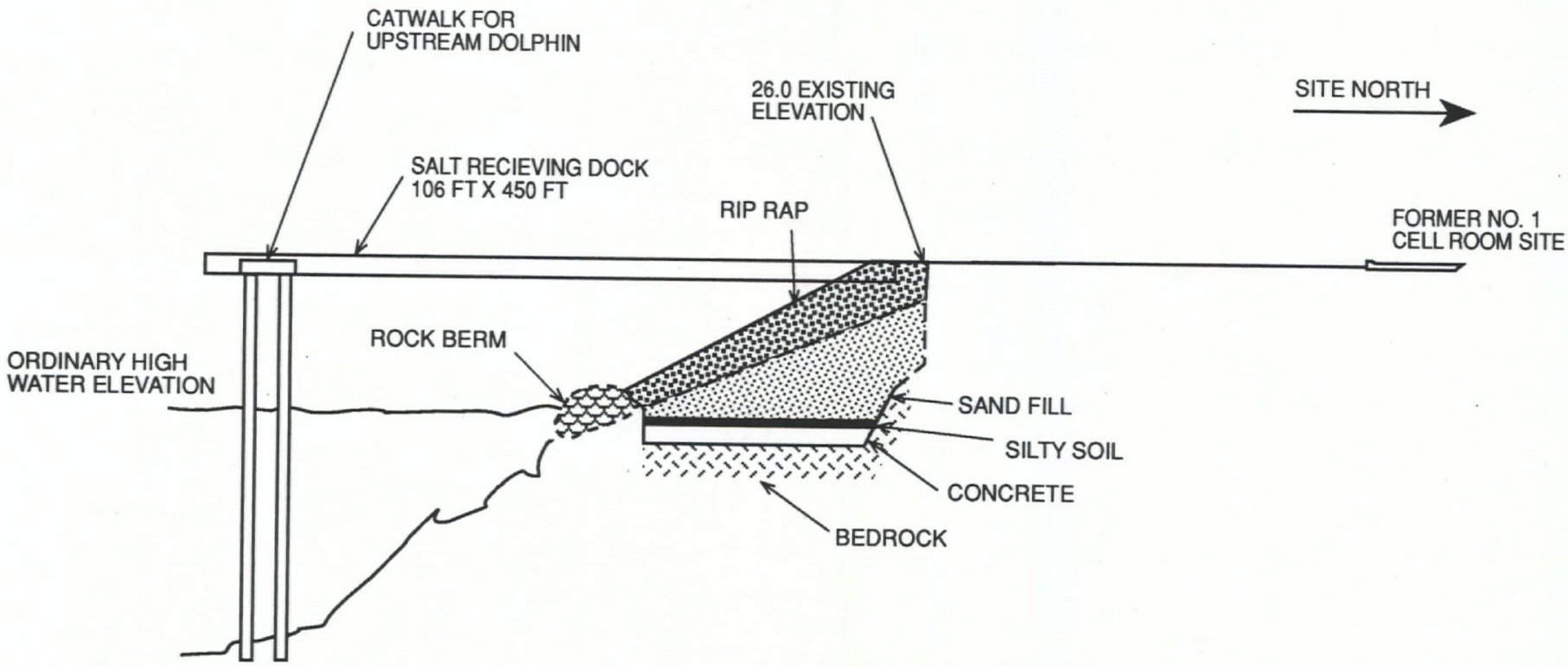
On March 11, diffuser disposal occurred. The outfall and diffuser pipes were cut, using an oxy-acetylene cutting torch, into approximately 15-foot sections. The sections were then crushed and stacked for disposal on the following day. Sediments that had been

contained in the pipe were allowed to dry on the containment pad. The containment pad, pipe, and sediments were disposed of at the hazardous waste landfill in Arlington, Oregon. While cutting up the outfall pipe, some holes were discovered in the bottom of the pipe in the section that lay on the riverbank.

On March 12, after the soil results had been reported, and because of the holes in the bottom of the outfall pipe, it was decided to extend the excavated area approximately 2 feet eastward and remove soil down to the elevation of the ordinary high water mark. At this time, the excavated area was bordered to the south by the Columbia River, to the west by the salt dock, and to the north by soil with an average mercury concentration of 3 mg/kg. After excavation, the area was again rigorously sampled with 18 soil samples and 2 duplicate samples. Included in these samples was soil collected from the mound to the east of the excavation. Results of the three samples collected from the mound indicated concentrations of 3.1 mg/kg, 4.8 mg/kg, and below the method reporting limit of 0.2 mg/kg at depths of 6, 18, and 36 inches, respectively. Results from the excavation area indicated a range of 6.2 to 810 mg/kg, with an average of 174 mg/kg. At the end of the day's activities, the rock berm along the shoreline was reinforced and a silt fence was again placed at the south end of the excavation.

On March 16, soil containing mercury above 24 mg/kg was known to exist below the elevation of the ordinary high water mark. Also, a reddish-colored material was visible to the east approximately 3 feet above the bottom of the excavation area. It was hypothesized, from results of past samples, that this reddish material contained mercury. In an attempt to remove this material, the excavation continued to the east and an additional foot of soil was removed from the bottom of the excavated area. Samples were collected at midday and the laboratory was asked to complete testing by the end of the day. Soil samples were no longer obtainable at the south end of the excavation because water had seeped into the excavated area. The six samples collected were analyzed for mercury, and results indicated a range in concentration of 88 to 339 mg/kg, with an average concentration of 195 mg/kg. These sample results indicated that soil containing mercury was still present below the elevation of the ordinary high water mark. The rock and soil berm was reinforced to prevent erosion of the riverbank into the Columbia River.

On March 17, it was decided to dig three test pits in order to investigate the depth to bedrock. A layer of basalt bedrock was expected beneath the excavation because bedrock was visible below the Salt Dock and Roll Grinder building. Bedrock was confirmed at a depth of 3 to 4 feet below the elevation of the ordinary high water mark. Bedrock approximately 25 feet north of the shoreline was above the ordinary high water elevation (Figure 4). It was decided to remove soil containing mercury until bedrock was encountered, and to install a layer of concrete on top of the basalt. The concrete was to act as a barrier between existing basalt and new fill material brought in to rebuild the bank. Twenty-one cubic yards of concrete were placed at the southern half of the excavation after soil removal was completed.



SCALE APPROXIMATE
1" = 25'

FIGURE 4
Current Conditions of Former No. 1 Cell Room Abandoned Diffuser Area (Side View)
WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

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On March 18, excavation and disposal were completed. An additional 21 cubic yards of concrete were positioned in the northern end of the excavation to complete the concrete layer. The concrete is approximately 28 feet long from east to west, 25 feet wide from north to south, and 1.5 to 2 feet thick. A layer of silty soil surfaced above the concrete and below the high water elevation as the concrete settled to rest on the bedrock. Four final samples were collected from the outside edge of the excavation area. Laboratory results indicated a range in mercury concentration from 1.5 to 12.6 mg/kg, with an average concentration of 6 mg/kg (Figure 5). Sand that was brought in to rebuild the bank was placed in the excavated area, and the berm at the shoreline was reinforced with large rocks.

The total amount of soil and debris excavated and transported to the Chemical Waste Management's Hazardous Waste disposal facility in Arlington, Oregon, including the diffuser and associated sediment, was 1,168 tons.

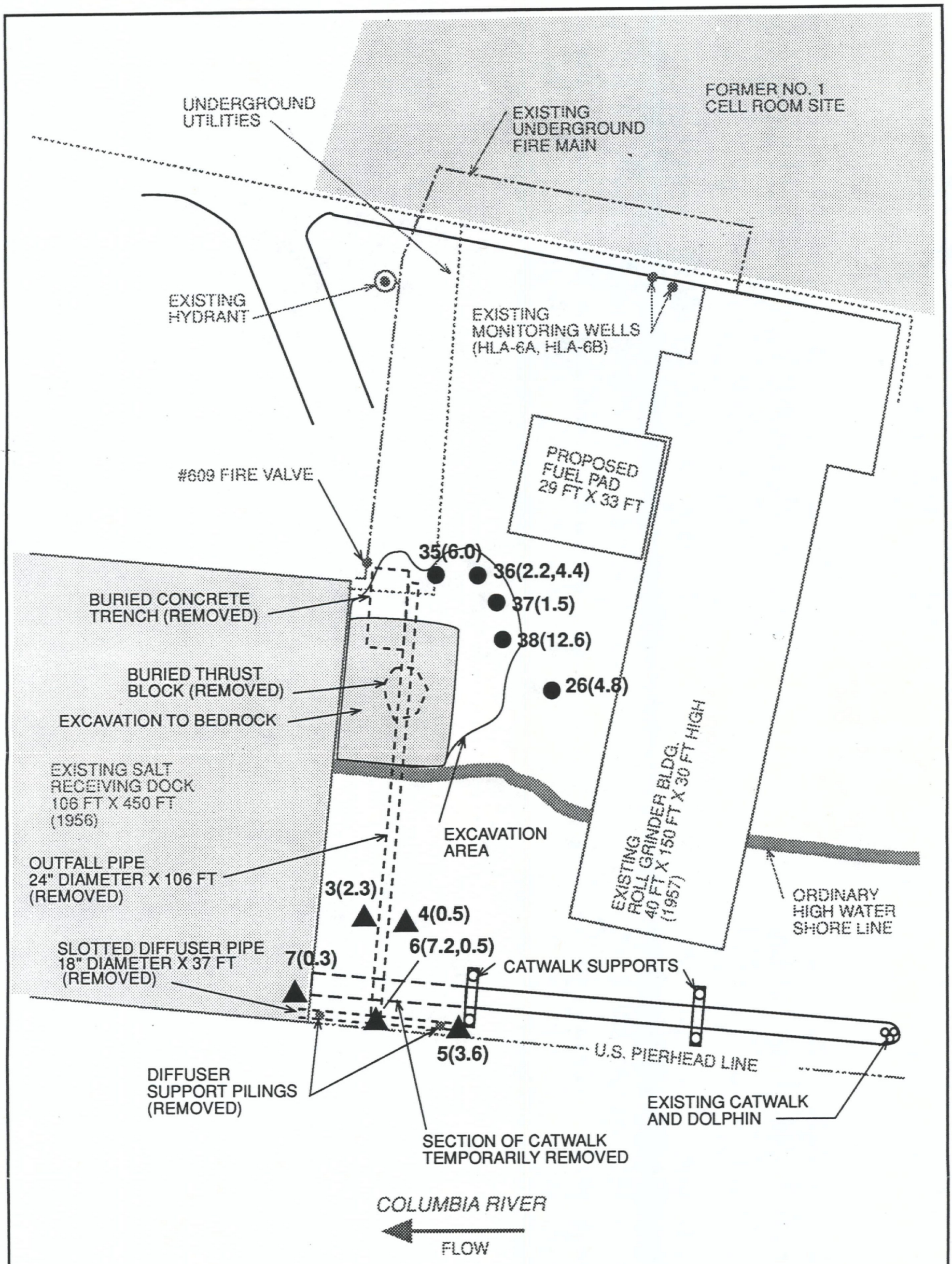
The rebuilding of the riverbank was completed on March 19, 1992. The berm was completed with large boulders intermixed with well-graded rock. The excavated riverbank was brought up to its former elevation with sand and was capped with well-graded riprap. Riverbank material included 970 tons of sand, 376 tons of rock (pit-run, gabion, and crushed), and 75 tons of large rock for construction of the shoreline berm (Figure 4).

Summary

A diffuser and concrete trench that had conveyed effluent from the former No. 1 Cell Room were removed from March 6 through March 9, 1992. Underwater activities for the rigging and the removal of the diffuser occurred March 6 and 9, 1992. Contractors who participated in project activities included Advanced American Diving Services, CH2M HILL, Columbia Analytical Services, Columbia Consulting Team, Chemical Waste Management (ENRAC), and King's Crane.

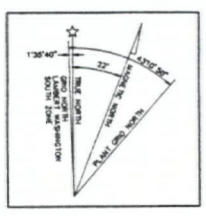
Permits were issued to Weyerhaeuser Company by Cowlitz County–Environmental Affairs, Ecology–Industrial Section, Ecology–Shoreline Section, and the Department of Fisheries. Included in permit applications were four activities:

- Removal of the abandoned diffuser in the Columbia River in an environmentally prudent manner
- Installation of a permanent concrete containment area for a new, double-walled, aboveground diesel storage tank
- Grading and paving of the immediate vicinity around the diesel storage tank pad for drainage of rainwater
- Replacement of the riprap on the riverbank



SOIL SAMPLES COLLECTED BY CH2M HILL MARCH, 1992
SEDIMENT SAMPLES COLLECTED BY CH2M HILL MARCH, 1992

Source: Permit application for diffuser removal and diesel tank relocation, Weyerhaeuser Company, December 3, 1991.



SCALE APPROXIMATE
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4(71) ● INITIAL SOIL SAMPLE LOCATION, IDENTIFIER, AND MERCURY CONCENTRATION (mg/Kg)

▲ INITIAL SEDIMENT SAMPLE LOCATION, IDENTIFIER, AND MERCURY CONCENTRATION (mg/Kg)

ND BELOW METHOD DETECTION LIMIT (0.2mg/Kg)

FIGURE 5
Soil and Sediment Sample Results After Abandoned Diffuser Removal
WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

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A building permit for the installation of the containment area was issued March 31, 1992, with construction planned for May 1992. The purpose of this report was to document the removal of the abandoned diffuser and soils on the riverbank while adhering to the permit requirements.

Initial sampling of the riverbank along the Columbia River, conducted in January 1992, indicated that soil containing mercury was present along the riverbank. Further sampling below the remnants of the outfall trench also indicated soil that contained mercury.

The diffuser system was removed in such a manner to minimize sediment and water loss into the Columbia River. After its removal, the diffuser was placed on a fabricated containment pad to be cut into sections for disposal in the hazardous waste landfill in Arlington, Oregon.

After removal of the diffuser, the riverbank was investigated using a rigorous sampling grid. From March 6 to March 18, 60 soil samples were collected from 38 sample locations within the excavated area. Sampling indicated that soil containing mercury existed at depths below the ordinary high water elevation. A decision was made to excavate soils to the top of bedrock basalt, which was below the ordinary high water elevation, to maximize removal of mercury-containing soil. Concrete was placed over the bedrock in the excavated area to act as a barrier between the bedrock and the clean fill used to rebuild the riverbank. According to laboratory results, mercury concentrations in samples of soil still remaining on the riverbank range from 1.5 to 12.6 mg/kg, with an average concentration of 6 mg/kg.

A total of 1,168 tons of soil and debris were excavated and disposed of in the hazardous waste landfill in Arlington, Oregon. A total of 1,421 tons of material were brought in to rebuild the riverbank.

Appendix A
Agency Correspondence

Weyerhaeuser

Longview Chlor-Alkali Plant
Longview, Washington 98632
Tel (206) 425 2150

November 25, 1991

Sheldon G. Somers
Environmental Planner
Cowlitz County Department of Community Development
207 Fourth Avenue North
Kelso, Washington 98626

RE: Permit Application for Diffuser Removal and Tank Relocation at the Weyerhaeuser Longview Chlor-Alkali Facility

Dear Mr. Somers:

Attached is a SEPA Checklist, Shoreline Substantial Development Permit, and Master Application for the removal of an abandoned outfall diffuser in the Columbia River and the related relocation of a diesel storage tank. The Excavation and Grading Addendum and the Floodplain Application Supplement are attached to the Master Application for your review.

Copies of the Army Corps of Engineers 404 Permit and the Department of Fisheries Hydraulic Permit are enclosed also. These permits are currently being submitted directly to the appropriate agency.

A brief history and description of the project is attached to provide you with a more defined scope of these activities. If I can be of any assistance to you, please do not hesitate to give me a call.

Sincerely,

Jim Sims

Jim Sims
Project Manager

phone: 206-636-6343
fax: 206-636-6470

PROJECT SUMMARY

DIFFUSER REMOVAL AND DIESEL TANK RELOCATION
WEYERHAEUSER LONGVIEW CHLOR-ALKALI FACILITY

HISTORY

In June 1990, Weyerhaeuser began the demolition of the No. 1 Cell Room Building in the Longview Chlor-Alkali Facility. Work proceed on this nearly two acre site until October 1991, when the site was closed under an Agreed Order with the Washington State Department of Ecology (Ecology). Weyerhaeuser is currently working with Ecology on the development of a Remedial Investigation/Feasibility Study (RI/FS) for the chlor-alkali site.

The effluent from the former No. 1 Cell Room flowed through a series of sumps and trenches to a diffuser in the Columbia River. In the mid-1970's, the No. 1 Cell Room was shutdown, and the diffuser was sealed off. All flow from the drainage trench was diverted to the mill effluent system. The diffuser was abandoned in place and a diesel tank was built over the drainage trench leading to the diffuser. During the demolition of the No. 1 Cell Room, the system of sumps and trenches were removed. The diesel tank had to be temporarily relocated in order to remove one of the drainage trenches.

PROJECT GOALS

The goals of this project are:

1) To remove an abandoned diffuser in the Columbia River in an environmentally prudent manner,
2) To install a new permanent concrete containment area for a new double walled above ground diesel storage tank, and
3) To grade and pave the immediate vicinity around the diesel storage tank pad for drainage of rainwater.

The incident rainfall in the containment area will be collected and forwarded to the mill wastewater treatment plant. Rainwater that falls upon the paved area surrounding the concrete containment area will be diverted to the drainage system that flows to the freshwater outfall.

DESCRIPTION

This project description has been compiled to outline each step of this project. These step-by-step details are

provided so that a better understanding of the project scope and impact can result. Because of physical constraints, the diffuser will have to be removed before the concrete containment area can be built. The project steps are listed below. (Please see attached project drawings for further details.)

Diffuser Removal

1) Reroute utilities that are located at the north end of the diffuser.
2) Remove dirt to expose the end of the diffuser and concrete thrust block.
3) Remove the rock and concrete rubble that can be reached by the excavator from the top of the riverbank. The reach of the excavator is not far enough to permit the removal of the concrete rubble covering the 20 feet of diffuser pipe immediately above the water line.
4) Remove dirt from the top of the riverbank to allow access to the thrust block and to finish removing the concrete rubble over the diffuser pipe. (An estimated 20 yards of soil would be removed.)
5) Finish removing concrete rubble and expose thrust block.
6) Attach a cable to the lifting eye (located about 10 feet above the waterline). Tie off the other end of the cable to a dock pier.
7) Use a hydraulic ram to break up the concrete thrust block around the diffuser pipe. The hydraulic ram will use the accessway installed by the excavator. Use the excavator to remove the concrete rubble as necessary.
8) Use a crane sitting on the dock to remove the section of walkway above the diffuser. Set the section of walkway on the dock.
9) Lift the diffuser out of the river with a crane at each end of the pipe. Set the diffuser on the dock.
10) Reinstall walkway.
11) Place clean rip rap in excavated areas.
12) Test excavated soils and diffuser and dispose of in the appropriate manner.

Diesel Tank Relocation

1) Remove the temporary diesel storage tank at the completion of the diffuser removal.
2) Excavate soil as necessary for the slab foundation. Confirm no diesel contamination at the bottom of the excavation.
3) Build containment slab and install new double walled above ground storage tank.
4) Pave surrounding area and slope to the existing rainwater collection system.

AFFIDAVIT OF PUBLICATION

IN THE MATTER NOTICE OF PUBLICATION

R43 WEYERHAEUSER PULP COMPA

23-05-017

STATE OF WASHINGTON }
COUNTY OF COWLITZ } SS.

CATHY HIGGINS being duly sworn says

at he/she is the CHIEF CLERK of the

THE DAILY NEWS

and that The Daily News, published in Cowlitz County, has been approved as a Legal Newspaper by order of the Superior Court of the State of Washington for Cowlitz County, and the Annexed printed copy is a true copy of the NOTICE

in the above entitled matter as it was printed in the regular entire issue of said paper for a period of TWO INSERTIONS

commencing on the 24 day of DECEMBER ,19 91 and ending on the 31 day of DECEMBER ,1991 , and that said newspaper was regularly distributed to its subscribers during all of said period, and that said NOTICE

was published in said newspaper and not in supplement form. That the full amount of the fee charged for said foregoing publication is the sum of $ 85.79 which amount has been paid in full at the rate of $ 7.87 per inch for the first insertion and $ 7.05 per inch each subsequent insertion.

Cathy McHiggins

Subscribed and sworn to before me this 02 day of JANUARY ,19 92

Notary Public for the State of Washington,
residing in Cowlitz County

Weyerhaeuser Pulp Company

Notice of Application For Shoreline Management Substantial Development Permit Floodplain Permit

Notice is hereby given that Weyerhaeuser Pulp Company, owner of the below described property, has filed an application for a substantial development permit/floodplain permit within the Columbia River shoreline area to construct a 29' x 34' reinforced concrete fueling pad; install an aboveground, double walled 1000-gallon diesel fuel tank and two 250-gallon lubricating oil tanks. Also includes installing a rainwater sump, one-half horsepower sump pump, and piping to the mill's industrial wastewater treatment facility; grading and paving fuel pad area; removing abandoned 24" steel diffuser pipe from bank and river; and cleaning riverbank and replacing riprap. Located at 3401 Industrial Way, Longview, Washington near Columbia River Mile 64.8; within Section 31 - Township 8 North - Range 2 West, Willamette Meridian.

Documents pertaining to this project for the purpose of environmental review under the State Environmental Policy Act are on file with the Cowlitz County Department of Community Development. DNS issue date December 31, 1991.

Any person desiring to express their views or to be notified of the action taken on this application should notify: COWLITZ COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT, COUNTY ADMINISTRATION BUILDING, 207 FOURTH AVENUE NORTH, KELSO, WASHINGTON 98626, in writing of their interest within thirty (30) days of the last notice given pursuant to WAC 173-14-020. The final date of publication, posting, or mailing of notice is December 31, 1991.

Written comments must be received by January 30, 1992.

Rosemary Baker, Administrative Secretary

Publish: Dec. 24, 31, 1991

AFFIDAVIT OF PUBLICATION

IN THE MATTER NOTICE OF PUBLICATION

R43 WEYERHAEUSER PULP COMPA

23-05-017

STATE OF WASHINGTON }
COUNTY OF COWLITZ } SS.

CATHY HIGGINS being duly sworn says

that he/she is the CHIEF CLERK of the

THE DAILY NEWS

And that The Daily News, published in Cowlitz County, has been approved as a Legal Newspaper by order of the Superior Court of the State of Washington for Cowlitz County, and he Annexed printed copy is a true copy of the NOTICE

in the above entitled matter as it was printed in the regular entire issue of said paper for a period of TWO INSERTIONS

commencing on the 24 day of DECEMBER ,19 91 and ending on the 31 day of DECEMBER ,19 91 , and that said newspaper was regularly distributed to its subscribers during all of said period, and that said NOTICE

was published in said newspaper and not in supplement form. That the full amount of the fee harged for said foregoing publication is the sum of $ 85.79 which amount has been aid in full at the rate of $ 7.87 per inch for the first insertion and $ 7.05 per inch for each subsequent insertion.

Cathy M Higgins

Subscribed and sworn to before me this 02 day of JANUARY ,19 92

Notary Public for the State of Washington,
residing in Cowlitz County

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Documents pertaining to this project for the purpose of environmental review under the State Environmental Policy Act are on file with the Cowlitz County Department of Community Development. DNS issue date December 31, 1991.

Any person desiring to express their views or to be notified of the action taken on this application should notify: COWLITZ COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT, COUNTY ADMINISTRATION BUILDING, 207 FOURTH AVENUE NORTH, KELSO, WASHINGTON 98626, in writing of their interest within thirty (30) days of the last notice given pursuant to WAC 173-14-020. The final date of publication, posting, or mailing of notice is December 31, 1991.

Written comments must be received by January 30, 1992.

Rosemary Baker, Administrative Secretary

Publish: Dec. 24, 31, 1991

DEPARTMENT OF FISHERIES

HYDRAULIC PROJECT APPROVAL

R.C.W. 75.20.100
R.C.W. 75.20.103

[4] January 28, 1992
(applicant should refer to this date in all correspondence)

DEPARTMENT OF FISHERIES
General Administration Bldg.
Olympia, Washington 98504
(206) 753-6650

[10] LAST NAME: Weyerhaeuser Company; FIRST	[18] CONTACT PHONE(S): (206) 636-6343	[1] CONTROL NUMBER: 00-53079-02
[19] STREET OR RURAL ROUTE: 3401 Industrial Way ATTENTION: Jim Sims		[7] [8] [9] WRIA: 25
CITY: Longview	STATE: WA ZIP: 98632	[14] [17]
[12] WATER: Columbia River	TRIBUTARY TO: Pacific Ocean	[11] TYPE OF PROJECT: Diffuser Removal and Riprap Replacement
[13] QUARTER SECTION: SW; SECTION: 31; TOWNSHIP: 08N; RANGE(E-W): 02W; COUNTY: Cowlitz		

TIME LIMITATIONS: [5] THIS PROJECT MAY BEGIN: Immediately; [6] AND MUST BE COMPLETED BY: March 14, 1993

THIS APPROVAL IS TO BE AVAILABLE ON THE JOB SITE AT ALL TIMES AND ITS PROVISIONS FOLLOWED BY THE PERMITTEE AND OPERATOR PERFORMING THE WORK.

SEE IMPORTANT GENERAL PROVISIONS ON REVERSE SIDE OF APPROVAL

NOTE: The Department of Fisheries has reviewed your plans received on December 5, 1991, and amended specifications received on January 24, 1992.

1. This project is approved as illustrated in your application subject to the following provisions.
2. Work below ordinary high water (OHW) shall not occur from March 22 through June 15, 1992, for the protection of outmigrating juvenile salmonids.
3. Removal of the diffuser from the Columbia River shall be limited to no more than two (2) days during the approved time frame.
4. All man-made debris below OHW in the vicinity of the project site shall be removed and disposed of upland such that it does enter waters of the state.
5. Bank material temporarily displaced during diffuser removal shall not be stockpiled on a temporary or permanent basis, below OHW.
6. Rock used for the bank protection shall be composed of clean, angular material of a sufficient size to prevent its being washed away by high water or wave action.

SEPA: DNS by Cowlitz Co. final January 15, 1992
REGIONAL HABITAT MANAGER - Bob Burkle (206) 753-5732
PATROL - Meriwether
APPLICANT - WILDLIFE - READER - PATROL - HAB. MGR. - WRIA

DEPARTMENT OF FISHERIES R. Timothy Flint for DIRECTOR

DEPARTMENT OF FISHERIES

HYDRAULIC PROJECT APPROVAL

R.C.W. 75.20.100
R.C.W. 75.20.103

[4] January 28, 1992
(applicant should refer to this date in all correspondence)

DEPARTMENT OF FISHERIES
General Administration Bldg.
Olympia, Washington 98504
(206) 753-6650

[10] LAST NAME	[18] CONTACT PHONE(S)	[1] CONTROL NUMBER
Weyerhaeuser Company	(206) 636-6343	00-53079-02
[12] WATER Columbia River		[9] WRIA 25

7. Any debris resulting from this construction project shall be removed from the water and disposed of or placed to prevent its being washed back into the water by high water or wave action.

8. If at any time there should be fish in distress, a fish kill, or water quality problems as a result of this project, the work operations will be shut down immediately and the Regional Habitat Manager listed below shall be notified immediately.

9. Siltation shall be kept to the absolute minimum as a result of this project.

10. No deleterious materials shall be allowed to enter state waters as a result of this project.

11. Water quality is not to be degraded to the detriment of fish life as a result of this project.

If you have any questions or need additional information, please contact Bob Burkle, Regional Habitat Manager, at (206) 753-5732.

nb:23:18

cc: Cowlitz County
Department of Community Development
ATTENTION: Kathy Harden
207 Fourth Avenue North
Kelso, Washington 98626

Cowlitz County

BOARD OF COUNTY COMMISSIONERS
R.L. MARUHN — DISTRICT NO. 1
JOAN L. LeMIEUX — DISTRICT NO. 2
VAN A. YOUNGQUIST — DISTRICT NO. 3

DEPARTMENT OF COMMUNITY DEVELOPMENT

PHYSICAL PLANNING • CODE ENFORCEMENT
SARAH L. KOSS, DIRECTOR

February 3, 1992

Office of the Attorney General
Ecology Division
Mail Stop PV-11
Olympia, Washington 98504

Department of Ecology*
Shoreline Management Permit Reviews
Mail Stop PV-11
Olympia, Washington 98504

RE: Shoreline Management Substantial Development Permit(s)
Application No. 91-0615/Weyerhaeuser Company

We are transmitting herewith the above-referenced application(s) approved by the Board of County Commissioners on February 3, 1992.

Very truly yours,

Sarah L. Koss

Sarah L. Koss, Director

Attachments

cc: BOCC/file
File No. 91-0615
Applicant: Weyerhaeuser Company

*Duplicate copy of permit packet hand-delivered to DOE office on Tuesday, February 4, 1992.

207 FOURTH AVENUE NORTH • KELSO, WASHINGTON 98626 • TELEPHONE (206) 577-3052 • SCAN 8-562-3052 FAX (206) 423-9987

SHORELINE MANAGEMENT ACT OF 1971
PERMIT FOR SHORELINE MANAGEMENT SUBSTANTIAL DEVELOPMENT

NOTE - THIS PAGE FOR LOCAL GOVERNMENT USE ONLY

Application No. 91-0615
Administering Agency:
Cowlitz County, Washington
Date Received: December 4, 1991
Approved: February 3, 1992*

Type of Action(s)
_x_ Substantial Development Permit

Pursuant to Chapter 90.58 RCW, a permit is hereby granted to **Weyerhaeuser Company, 3401 Industrial Way, Longview, Washington 98632,** to undertake the following development within the Columbia River and/or associated wetlands (shorelines of statewide significance [RCW 90.50.030]): construct a 29-foot by 34-foot reinforced concrete fuelling pad; install an aboveground, double walled 1000-gallon diesel fuel tank, two 250-gallon lubricating oil tanks, a rainwater sump, a one-half horsepower sump pump, and piping to the mill's industrial wastewater treatment facility; grade and pave the area around the fuelling pad (approximately 40 yards of 5/8" crushed rock); remove an abandoned 24-inch steel diffuser pipe from the bank and river; clean riverbank and replace riprap (approximately 80 yards pit fun rock).

The project is located Weyerhaeuser Company millsite at 3401 Industrial Way, Longview, Washington; within Section 16 - Township 8 North - Range 3 West, Willamette Meridian.

The site is within an Urban designation; and, the following master program provisions are applicable to this development:

Ports and Water-Related Industries, Urban District
Construction and Operations Regulations

Development pursuant to this permit shall be undertaken pursuant to the following terms and conditions:

1. Construction debris, including petroleum products and chemicals, shall not be allowed to enter the waters of the Columbia River.

2. Applicant shall comply with the Construction and Operation Regulations in the Cowlitz County Shoreline Master Program (page 30).

3. Applicant must notify the Department of Ecology within 24 hours if contamination of soil or groundwater from the diffuser pipe is readily visible or revealed by sampling.

4. Compliance with all applicable county codes and ordinances and all necessary federal, state and local permits shall be met.

This permit is granted pursuant to the Shoreline Management Act of 1971 and nothing in this permit shall excuse the applicant from compliance with any other federal, state or local statutes, ordinances or regulations applicable to this project, but not inconsistent with the Shoreline Management Act (Chapter 90.58 RCW).

This permit may be rescinded pursuant to RCW 90.58.140(8) in the event the permittee fails to comply with the terms or conditions thereof.

CONSTRUCTION PURSUANT TO THIS PERMIT WILL NOT BEGIN OR IS NOT AUTHORIZED UNTIL THIRTY DAYS FROM THE DATE OF FILING AS DEFINED IN RCW 90.58.140(6) AND WAC 173-14-090, OR UNTIL ALL REVIEW PROCEEDINGS INITIATED WITHIN THIRTY DAYS FROM THE DATE OF SUCH FILING HAVE TERMINATED; EXCEPT AS PROVIDED IN RCW 90.58.140(5)(a)(b)(c).

DATE 2-3-92

Joan L. LeMieux, Chairman
Board of Commissioners
Cowlitz County, Washington

ATTEST: _____
Clerk of the Board

*THIS PERMIT IS VALID FOR FIVE YEARS FROM THE DATE OF APPROVAL.

****

THIS SECTION FOR DEPARTMENT USE ONLY IN REGARD TO A CONDITIONAL USE OR VARIANCE PERMIT.

DATE RECEIVED BY DEPARTMENT OF ECOLOGY _____

APPROVED _____ DENIED _____

This conditional use/variance permit is approved denied by the department pursuant to Chapter 90.58 RCW.

Development shall be undertaken pursuant to the following additional terms and conditions.

_____ _____

(DATE) (Signature of Authorized Official
Department of Ecology)

CONSTRUCTION AND OPERATIONS REGULATIONS

The following regulations cover the construction practices that must be observed for substantial developments:

1. No construction equipment shall enter any shoreline body of water, except as authorized under the terms of a substantial development permit.

2. Vegetation along the water shall be left in its natural conditions unless the substantial development permit allows otherwise.

3. During construction, care will be taken to assure that waste material and foreign matter are not allowed to enter the water.

4. All fuel and chemicals shall be kept, stored, handled and used in a fashion which assures that there will be no opportunity for entry of such fuel and chemicals into the water.

5. Protection from siltation and erosion shall be provided for on all earthworks projects.

6. Land being prepared for development shall have an adequate drainage system to prevent runoff from entering water bodies.

7. Side casting of excess road building material into streams will not be permitted.

8. All construction debris such as fuel and oil containers and barrels and other miscellaneous litter shall be removed from the shoreline area. No equipment shall be abandoned within the shoreline area.

9. State and federal water quality standards for both inter-state and intra-state waters already are established. These shorelines regulations need only allude to these and other regulations already in effect. Any activities within the shorelines must, as a minimum, meet all these other regulations.

Weyerhaeuser

Longview Chlor-Alkali Plant
Longview, Washington 98632
Tel (206) 425 2150

February 3, 1992

Kathy Harnden, Cowlitz County, Environmental Affairs
Tom Todd, Ecology Southwest Regional Office
Loree' Randall, Ecology Water Quality Program
Paul Skyllingstad, Ecology Industrial Section
Kim Van Zwalenburg, Ecology Shorelines Section - Permits
Bob Burkle, Department of Fisheries

RE: Soil Testing and Results for the Diffuser Removal Project

The Shoreline Management Substantial Development Permit (Application No. 91-0615) and the Department of Ecology's Environmental Review Section comments on the SEPA checklist specify that if contamination of soil is revealed by sampling in the vicinity of the diffuser pipe that the Department of Ecology is to be notified. The SEPA checklist pointed out the possibility that soil in this area could be contaminated with mercury. When the drainage ditch leading to the diffuser pipe was removed in May 1991, the soil beneath this concrete ditch was sampled for mercury. The three sample results ranged from 9.4 - 124.0 mg/kg mercury. A summary of the concrete drainage ditch removal is contained in the No. 1 Cell Room Independent Cleanup Action Report that was submitted to the Department of Ecology in September 1991.

To help define the project scope and potential soil removal activities, soil sampling in the vicinity of the diffuser pipe was initiated on January 21, 1992. Preliminary results from the analytical lab indicate a range of 5.8 - 390 mg/kg mercury in these soil samples. A total of eight surface soil samples were collected from a 35' X 50' area. As specified in the SEPA and Shorelines Permit Application, soil excavated from this area during the removal of the diffuser will be sampled and disposed of at the appropriate location. The removed soil will not be reused as fill on the riverbank. After the soil and diffuser have been removed, confirmational sampling of the remaining soil will be done.

If you have any questions, please do not hesitate to give me a call at 206-636-6343.

Sincerely,

Jim Sims

Jim Sims
Project Manager

Weyerhaeuser

Longview Chlor-Alkali Plant
Longview, Washington 98632
Tel (206) 425 2150

February 3, 1992

Loree' Randall
Water Quality Program
Department of Ecology
P.O. Box 47775
Olympia, Washington 98504-7775

RE: Water Quality Standards Modification Application Form

Dear Ms Randall:

Attached is a Water Quality Standards Modification Application Form for the Diffuser Removal and Diesel Tank Relocation Project at the Weyerhaeuser Longview complex. This form is submitted as per comments received from Brenden McFarland of the Department of Ecology's Environmental Review Section on the SEPA checklist.

Copies of the project summary and description, SEPA checklist, county Shorelines permit, and Department of Fisheries' Hydraulic Permit are attached to provide you with a better understanding of this project. If I can be of any assistance to you, please do not hesitate to give me a call.

Sincerely,

Jim Sims

Jim Sims
Project Manager

phone: 206-636-6343
fax 206-636-6470

Water Quality Standards Modification
Application Form

Applicant: Weyerhaeuser Company

Address: P.O. Box 188
3401 Industrial Way
Longview, WA 98632

Phone: Jim Sims, Project Manager
206-636-6343

Project Name: Diffuser Removal and Diesel Tank Relocation

Project Location: Longview, WA County: Cowlitz
(Section 31, Township 08 North, Range 02 West)

Corps Public Notice No.: (not applicable)

Description of Proposed Activity:

Construct a 29' X 34' reinforced concrete fueling pad. Install above ground, double walled 1000 gallon diesel fuel tank and two 250 gallon lubricating oil tanks. Install rainwater sump, 1/2 horsepower sump pump, and piping to mill industrial wastewater treatment facility. Grade and pave area around fueling pad. Remove abandoned 24" steel diffuser pipe from the bank and the river. Clean riverbank and replace rip-rap. (Please see attached drawings for more information.)

Nature of Expected Water Quality Problems and Proposed Discharges:

No water quality problems or discharges are expected. During the removal of the diffuser, removal of rip-rap and soil, and subsequent replacement of rip-rap, some turbidity may occur. As mentioned in the SEPA checklist, some of the soil on the bank may be contaminated with mercury.

Schedule and Duration of Construction Activities, Life of Project:

The removal of the diffuser has been scheduled to begin on March 9 and conclude by March 22. The project start date is dependent on the Department of Ecology's 30 day review period for shoreline permits. The project end date is as specified in

the Department of Fisheries Hydraulic Permit because of the spring migratory fish restrictions.

Proposed Actions During Construction to Reduce Severity or Duration of Water Quality Impacts:

1) Diffuser will be removed as a single unit. The diffuser will not be cut or dismantled in the river.
2) Lifting techniques will be employed to contain any material inside of the diffuser while it is being removed from the river.
3) Removal of the diffuser from the river will be limited to 2 days.
4) No work is anticipated below the ordinary high water mark (OHW).
5) Precautions will be taken to prevent siltation or erosion of soils from the river bank.

A copy of the Department of Fisheries Hydraulic Permit is attached.

The State Environmental Policy Act (SEPA) was complied with on **January 15, 1992** (date) by **Cowlitz County** (lead agency).

Signature Jim Sims Date January 31, 1992

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia Washington 98504-8711 • (206) 459-6000

February 6, 1992

Mr. Jim Sims
Weyerhaeuser Company
3401 Industrial Way
Longview, WA 98632

Re: Cowlitz County Permit #91-0615
Weyerhaeuser Company - Applicant
Shoreline Substantial Development Permit #1992-13036

Dear Mr. Sims:

The subject Shoreline Management Substantial Development permit has been filed with this office by Cowlitz County on February 4, 1992.

If this permit is not appealed to the Shorelines Hearings Board on or before March 5, 1992, authorized construction may begin. Other federal, state, and local laws regulating such construction shall be complied with. Unless an appeal is filed, this letter constitutes final notification of action on this permit.

Sincerely,

Patricia Trerice

Patricia Trerice
Permit Coordinator
Shorelands and Coastal Zone
Management Program

PT:dh
sdp.mg

cc: Cowlitz County, Sarah L. Koss

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

3/2/92 JDF

FEB 28 1992

CERTIFIED MAIL

Mr. Gary Healea
Weyerhaeuser Paper Company
Post Office Box 188
Longview, Washington 98632

Enclosed is order No. DE 92-WQI039. All correspondence relating to this document should be directed to Richard A. Burkhalter, Industrial Section Supervisor. If you have any questions concerning the content of the document, please call Paul Skyllingstad at (206) 586-0583.

Sincerely,

Richard A. Burkhalter, P.E.
Supervisor, Industrial Section

Enclosure

DEPARTMENT OF ECOLOGY

IN THE MATTER OF THE REQUEST BY)
WEYERHAEUSER CHLOR-ALKALI PLANT) ORDER
FOR TEMPORARY MODIFICATION OF) No. DE 92-WQI039
WATER QUALITY STANDARDS)

To: Mr. Gary Healea
Weyerhaeuser Paper Company
Post Office Box 188
Longview, Washington

On February 3, 1992, Weyerhaeuser Chlor-Alkali Plant submitted a request for temporary modification of the water quality criteria of Columbia River Mile 64 during the period March 6 through March 22, 1992 for the purpose of removing an abandoned diffuser pipe, cement thrust block and associated contaminated soil.

In view of the foregoing and in accordance with RCW 90.48.120(2):

It is Ordered that the water quality criteria specified in WAC 173-201-045(2) is hereby modified for a limited period beginning March 6, 1992 and terminating at midnight, March 22, 1992.

This modification is subject to the following condition(s):

1. Properly dispose of all construction debris on land in such a manner that it cannot enter into the waterway or cause water quality degradation to state waters.

2. Work in or near the waterway shall be done so as to minimize turbidity, erosion, other water quality impacts, and stream bed deformation.

3. All areas disturbed or newly created by the project construction will be seeded, riprapped with clean, durable riprap or given some other equivalent type of protection against erosion.

4. Extreme care shall be taken to prevent any petroleum products, fresh cement, lime or concrete, chemicals, or other toxic or deleterious materials from entering the water in any manner.

5. Fresh, uncured concrete in direct contact with the water is toxic to aquatic life. All concrete shall be poured in the dry and shall be allowed to cure a minimum of seven (7) days before contact with water.

6. All lumber treated with creosote or other protective material shall be completely dry before use in or near the waterway.

7. Dredge spoils and/or excess excavated material shall be transported and disposed of in a manner that prevents the spoils from entering state waters and prevents leachate or drainage from the spoils from degrading water quality.

8. No wood waste or other organic material is to be used in the fill.

9. Special care shall be taken in removing soil beneath diffuser pipe and associated abandoned waste water conveyance system. Soil removed from beneath the diffuser pipe shall be prevented from entering the Columbia River. Any leachate or runoff from beneath the diffuser pipe or associated waste water conveyance system shall be prevented from entering the Columbia River. Soil shall be sampled and tested for mercury to determine the appropriate disposal location.

10. The activities must comply with all conditions contained in the Washington Department of Wildlife/Fisheries Hydraulic Project Approval(s).

11. All work must be completed by March 22, 1992, and any further dredging/bank excavation will require reapplication for a Water Quality Standards Modification.

12. This approval does not relieve the applicant from the responsibility of meeting applicable regulations of other agencies.

13. In the event of a spill or non-regulated discharge to waters of the state, the Industrial Section (206) 586-0562 and Southwest Regional Office spill response (206) 753-2353 shall be notified immediately.

14. Copies of this Order shall be kept on the job site and readily available for reference by construction personnel, the construction superintendent, construction managers and foremen, and state and local government inspectors.

The Department retains continuing jurisdiction to make modifications hereto through supplemental order, if it appears necessary to further protect the public interest during the modification period.

Any person who fails to comply with any provision of this Order shall be liable for a penalty of up to ten thousand dollars for each day of continuing noncompliance.

Dated this 25 th day of February, 1992 at Olympia, Washington.

Richard A. Burkhalter, P. E.
Supervisor, Industrial Section

Appendix B

Field Sampling Plan for Removal of the Abandoned Diffuser

Field Sampling Plan for Removal of the Abandoned Diffuser

Prepared for
Weyerhaeuser Company
Longview, Washington

Prepared by
CH2M HILL

March 1992

PDX346/038.51

Contents

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Introduction	1
Background	1
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Sediment Sampling Technique	4
Soil Sampling Technique	5
Sample Handling and Analysis	5
Decontamination Procedure	6
Figure	
1	3

Introduction

Background

In 1958 Weyerhaeuser Company began operating the Chlor-Alkali Plant in Longview, Washington, to produce chlorine and caustic for the company's pulp and paper mills. Production took place in the No. 1 Cell Room where the mercury cell process was used. In the mid-1970s, the No. 1 Cell Room discontinued operation, and by October 1991, demolition of the No. 1 Cell Room was completed.

During operation of the former No. 1 Cell Room, effluent flowed through a series of sumps and trenches to a diffuser in the Columbia River. The diffuser was installed in 1966 and operated from 1966 to 1976. During shut down of the No. 1 Cell Room, the diffuser was abandoned. As part of the No. 1 Cell Room demolition, the sump and trench system was removed. The diffuser and the remnants of the trench leading to the diffuser will be removed during the week of March 9, 1992.

Objective

This field sampling plan has two objectives.

The first objective of field sampling is to characterize mercury concentrations in sediment before and after removal of the outfall and diffuser. This objective will be accomplished through the following steps:

- Use marking paint or flagging on permanent site features to locate sample points. Permanent site features will include the salt dock and underwater diffuser supports.
- Identify sample locations by driving lengths of rebar into the sediment. The rebar markers will be secured so that they will remain intact and unmoved during the diffuser removal.
- Collect and analyze sediment samples at 7 locations along the outfall and diffuser.
- Collect and analyze sediment samples at the same 7 locations after outfall and diffuser removal.

The second objective of field sampling is to delineate mercury contamination along the river bank between the salt dock and the roll grinder. This will be accomplished by collecting surface soil samples in this area. Soil will be excavated along the river bank in order to dislodge a thrust block from the diffuser prior to diffuser removal. After soil is excavated, surface grab samples will be collected from the remaining top soil. Excavation and sampling will continue until satisfactory laboratory results are achieved from the samples.

Sampling Procedure

Sample Designation

Each sample collected will be designated by a unique alpha-numeric identifier according to the following scheme:

A-123-456-BC-78989-DE

where:

A = The site area code from the following:

H = Former No. 1 Cell Room Diffuser Area

123 = Depth (in inches) at which the sample was obtained (use zeroes as initial place-holders where necessary [e.g., 001, 015, 099])

456 = Three-digit sequential number of sample within given area (use zeroes as initial place-holders where necessary [e.g., 001, 015, 099])

BC = Two-letter matrix code from the following:

SE = Sediment
SO = Soil

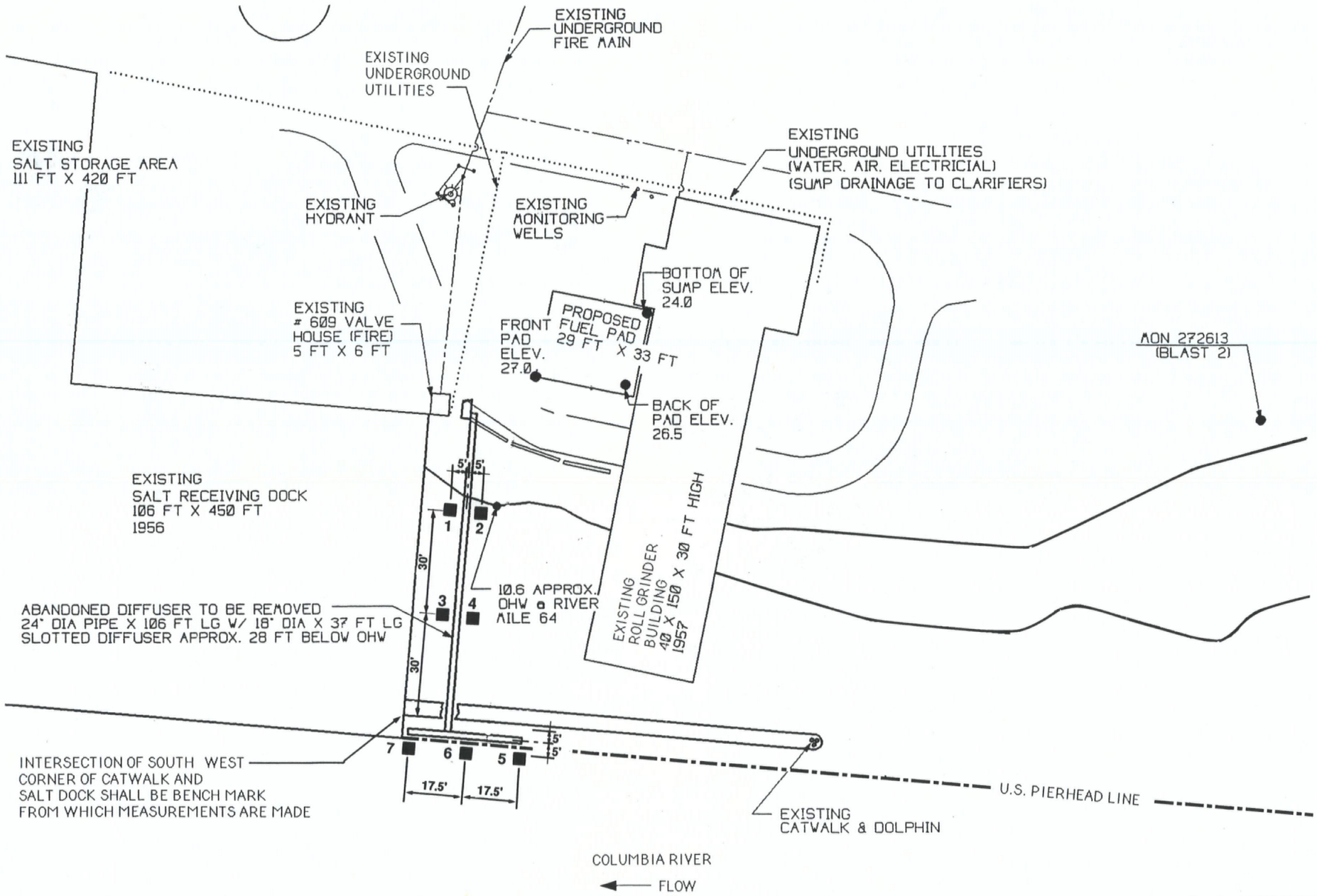
78989 = Five-digit date where 789 represents the sequential number of the day of the year (001 through 366) and 89 represents the last two digits of the year (e.g., "91" for 1991)

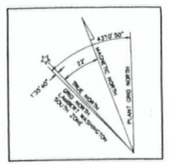
DE = Quality control or composite sample code from the following:

XX = Not QC or Composite Sample
XI = Initial sample (pre-removal)
XF = Final sample (post-removal)
DU = Duplicate

Sample Locations

A total of 7 sediment sample locations are shown in Figure 1. Soil sample locations along the river bank between the salt dock and roll grinder building will be identified as the excavation takes place.





0 17.5 35 Feet

Legend

■1 Sample location and sample identifier before and after diffuser removal

Note: All samples will be collected approximately 5 feet from center of outfall or diffuser

Source: Permit application for diffuser removal and diesel tank relocation, Weyerhaeuser Company, December 3, 1991

FIGURE 1

Abandoned Diffuser Removal Sample Locations

WEYERHAEUSER CHLOR-ALKALI PLANT
LONGVIEW, WASHINGTON

CH2M HILL

Sediment sampling at all locations will be conducted prior to and after removal of the outfall and diffuser. It is essential to be able to identify exact sample locations after the removal process. Therefore, two methods will be used to identify sample locations:

- Use marking paint or flagging on permanent site features as a reference to locate sample points.

- Rebar will be driven into the sediment at each sample location. The rebar will be clearly marked with attached floats and secured, so that after the outfall and diffuser are removed the rebar will be visible and unmoved.

The intersection of the southwest corner of the catwalk and the salt dock will be used as a bench mark. Measurements will be made from this point to establish sample locations. All sediment samples will be collected at an approximate distance of 5 feet from the centerline of the diffuser or outfall. Sample locations should be identified such that debris or other obstacles will not inhibit collection of initial and final samples within a 1-foot radius.

Sediment Sampling Technique

The overall approach to sediment sampling is to characterize mercury concentrations in river sediments prior to and following diffuser removal. This investigation will be accomplished by divers who will collect sediment samples.

Sediment samples will be collected from the surface to a depth of 4 to 6 inches. The preferred method of collection will be to push a section of tubing into the sediment, place a cap over the top to create a seal, remove the section from the sediment, and cap the bottom to prevent sample loss. The tubing shall be made of polyvinyl chloride (PVC) or Lexan and measure 6 inches in length and 2 inches in diameter. If excess debris or other conditions do not warrant the use of the coring method, a disposable spoon or trowel will be used to collect a grab sample. During sample collection, two duplicate samples will be collected for QA purposes. A total of 7 sediment samples and one duplicate sample will be collected prior to outfall and diffuser removal.

During sampling the divers will take every precaution to minimize disturbance of bottom sediments. Sampling will proceed from the most downstream sampling location to the most upstream sampling location to minimize the impacts of sediment resuspension on sampling results.

If rebar markers cannot be located during final sampling, sample points will be relocated. Final sampling will be conducted in the same manner as the initial sampling, with 7 sediment samples and one duplicate sample being collected.

Soil Sampling Technique

Soil samples will be collected from the river bank between the salt dock and the roll grinder building. Samples were previously collected in this area during January 1992. Laboratory analysis indicated mercury contamination between 6 and 390 mg/l. Soil samples will be collected from the surface to a depth of 6 inches using a disposable trowel or spoon. A duplicate sample will be collected for every ten samples.

Sample Handling and Analysis

The following procedure will be used for sample handling:

- Collected samples will be observed visually for obvious indications of contamination.
- A sample label will be filled out with waterproof ink and firmly affixed to the sample container. The sample label will include the site name, unique sample identification number, date and time (24-hour clock) collected, name of sample collector, and analyses requested.
- The sample jar will be placed in a Ziploc plastic bag and then immediately placed in a sturdy ice chest containing ice or blue ice.
- For each sample, the following information will be recorded in the field notebook: sample designator, date and time of sample collection, type of sample, sampling method, description of noteworthy physical characteristics of the sample, field observations, and disposition of the sample.
- When all the samples have been packed, a copy of the chain-of-custody form will be placed in a plastic bag and taped to the inside of the ice chest lid. The chest will be closed, sealed with shipping tape, and labeled. Two chain-of-custody seals will be affixed so that they will be broken if the lid of the chest is raised.
- The sealed chest(s) will be delivered to Columbia Analytical Laboratory in Kelso, Washington.

A total of 16 sediment samples will be submitted to the laboratory. The number of soil samples will be determined in the field. All samples will be analyzed for total mercury using EPA Method 7471. Samples will be preserved at 4 degrees centigrade.

Decontamination Process

The following decontamination procedures will be used to reduce the potential for cross contamination. Non-laboratory-issued sample containers and sampling equipment that may contact the samples or sample containers will be cleaned before use and between each sampling event using the following four-step process:

- Wash with detergent (Alconox phosphate or a similar nonphosphate) containing a surfactant added as a wetting agent
- Rinse with tap water
- Rinse with 0.1 normal nitric acid
- Rinse with distilled water

If sampling is conducted with a disposable stainless-steel spoon or trowel, no equipment decontamination will be required.

Appendix C
Laboratory Results

Columbia Analytical Services, Inc.

February 4, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Weyco/Project #PDX32451.EO**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on January 22, 1992. Preliminary results were transmitted via facsimile on January 30, 1992. For your reference, these analyses have been assigned our work order number K920412.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

George Perry

George Perry
Project Chemist

GP/kh

cc: Stu Brown (CH2M Hill - Portland)

317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	01/22/92
Project:	Weyco/#PDX32451.EO	**Date Analyzed:**	01/27/92
Sample Matrix:	Soil	**Work Order #:**	K920412

Total Mercury
EPA Method 7471
mg/Kg
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
N-006-001-SO-02192-XX	K0412-1	0.2	281
N-006-002-SO-02192-XX	K0412-2	0.2	9.8
N-006-003-SO-02192-XX	K0412-3	0.2	83.9
N-006-004-SO-02192-XX	K0412-4	0.2	71.3
N-006-005-SO-02192-XX	K0412-5	0.2	390
N-006-006-SO-02192-XX	K0412-6	0.2	15.1
N-006-007-SO-02192-XX	K0412-7	0.2	5.8
N-006-008-SO-02192-XX	K0412-8	0.2	121
Method Blank	K0412-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by George Perry Date 2/4/92

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	01/22/92
Project:	Weyco/#PDX32451.EO	**Date Analyzed:**	01/27/92
Sample Matrix:	Soil	**Work Order #:**	K920412

Solids, Total
EPA Method Modified 160.3
Percent (%)

Sample Name	Lab Code	Result
N-006-001-SO-02192-XX	K0412-1	80.6
N-006-002-SO-02192-XX	K0412-2	88.7
N-006-003-SO-02192-XX	K0412-3	87.2
N-006-004-SO-02192-XX	K0412-4	82.8
N-006-005-SO-02192-XX	K0412-5	89.6
N-006-006-SO-02192-XX	K0412-6	88.3
N-006-007-SO-02192-XX	K0412-7	84.1
N-006-008-SO-02192-XX	K0412-8	81.3

Approved by George Perry Date 2/4/92

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Columbia Analytical Services inc.

K0412

CHA[illegible] OF CUSTODY/LABORATORY ANALYSIS RE[illegible]JEST FORM

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DATE 1/21/92 PAGE 1 OF 1

PROJECT NAME WEYCO #POX 32451.E0

PROJECT MNGR STU BROWN

COMPANY/ADDRESS CH2M HILL
2020 SW 4TH
PORTLAND OR. 97201 PHONE (503) 224-9190

SAMPLERS SIGNATURE [signature]

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240	Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐	Pesticides/PCBs 608/8080	Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐	TPH/Gas/BTEX 5030/8015/8020 Gas ☐ BTEX ☐	TPH/8015 Modified Diesel ☐ Hydrocarbon Scan ☐	TPH - HCID	TCLP Metals ☐ VOA ☐ Semi VOA ☐ Pest/Herb ☐	Metals (total or dissolved) List Below	Cyanide	pH, Cond, Cl, SO_4, PO_4, F, Br, NO_2, NO_3 (circle)	NH_3-N, COD, Total-P, TKN, TOC (circle)	Total Organic Halides (TOX) 9020	TOTAL Hg METHOD 7471		REMARKS
H-006-001-SO-02192-XX	1/21/92	1000		SOIL	1															X		
H-006-002-SO-02192-XX					1															X		
H-006-003-SO-02192-XX					1															X		
H-006-004-SO-02192-XX					1															X		
H-006-005-SO-02192-XX					1															X		
H-006-006-SO-02192-XX					1															X		
H-006-007-SO-02192-XX					1															X		
H-006-008-SO-02192-XX	1/21/92	1000		SOIL	1															X		

RELINQUISHED BY:

[signature]
Signature
William C Griff[illegible]
Printed Name
CH2M HILL
Firm
1/21/92
Date/Time

RECEIVED BY:

Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:

___ 24 hr ___ 48 hr ___ 5 day
___ Standard (~10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ___

REPORT REQUIREMENTS

___ I. Routine Report
___ II. Report (includes DUP,MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV.CLP Deliverable Report

INVOICE INFORMATION:

P.O. # ___
Bill to: ___

SAMPLE RECEIPT:

Shipping VIA: ___
Shipping #: ___
Condition: ___
Lab No.: ___

RELINQUISHED BY:

Signature
Printed Name
Firm
Date/Time

RECEIVED BY:

Signature
Printed Name
Firm
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

00003

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

Columbia Analytical Services, Inc.

March 10, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **PDX32451.EO**

Dear Jim:

Enclosed are the results of the samples submitted to our lab on March 5, 1992. Preliminary results were transmitted via facsimile on March 6, 1992. For your reference, these analyses have been assigned our work order number K921370.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Dave Edelman, f. for
Jeff Christian

JC/rdb

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/05/92
Project:	PDX32451.EO	**Date Analyzed:**	03/06/92
Sample Matrix:	Soil	**Work Order #:**	K921370

Solids, Total
EPA Method Modified 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-003-SE-06592-xi	K1370-1	32.4
H-006-004-SE-06592-xi	K1370-2	56.1
H-006-005-SE-06592-xi	K1370-3	63.4
H-006-007-SE-06592-xi	K1370-4	37.9
H-006-006-SE-06592-xi	K1370-5	72.3
H-006-006-SE-06592-DU	K1370-6	66.0

Approved by Dave Shelton Date 3/11/92

00001

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/05/92
Project:	PDX32451.EO	**Date Analyzed:**	03/06/92
Sample Matrix:	Soil	**Work Order #:**	K921370

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-003-SE-06592-xi	K1370-1	0.2	0.4
H-006-004-SE-06592-xi	K1370-2	0.2	0.6
H-006-005-SE-06592-xi	K1370-3	0.2	ND
H-006-007-SE-06592-xi	K1370-4	0.2	0.6
H-006-006-SE-06592-xi	K1370-5	0.2	ND
H-006-006-SE-06592-DU	K1370-6	0.2	ND
Method Blank	K1370-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Eslinger Date 3/11/92

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APPENDIX A

LABORATORY QC RESULTS

317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/05/92
Project:	PDX32451.EO	**Date Analyzed:**	03/06/92
Sample Matrix:	Soil	**Work Order #:**	K921370

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-005-SE-06592-xi	K1370-3	0.2	ND	0.4	NC	NC

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit
NC Not Calculated

Approved by Dave Edel /1 Date 3/11/92

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/05/92
Project:	PDX32451.EO	**Date Analyzed:**	03/06/92
Sample Matrix:	Soil	**Work Order #:**	K921370

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-005-SE-06592-xi	K1370-3	0.2	97.5	ND	81.3	83	60-130

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Dave Edel / Date 3/11/92

00005

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company
Project: PDX32451.EO
Sample Matrix: Soil

Work Order #: K921370

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA - LCS

Analyte	Method	True Value	Result	Control Limits
Mercury	7471	12.7	12.7	8.5-17.0

Approved by Dave Ekel Date 3/11/92

00006

APPENDIX B

CHAIN OF CUSTODY INFORMATION

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K1370

CH2M HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER: PDX 3245J.E0	PROJECT NAME: Weyco
CLIENT NAME: Weyco	
PROJECT MANAGER: STU BROWN/PDX	COPY TO: John Childs/PDX
REQUESTED COMP. DATE: 3/16/92 AM (3-5-92)	SAMPLING REQUIREMENTS: SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____

CLIENT ADDRESS AND PHONE NUMBER: JIM SIMS / WEYCO C-188-92

ANALYSES REQUESTED

STA NO.	DATE	TIME	COMP	GRAB	SOIL	SAMPLE DESCRIPTIONS (12 CHARACTERS)	# OF CONTAINERS	Total # Mercury 5471
3	3/5/92	1130		X		H-006-003-SE-06592-Xi	3	X
4		1135		X		H-006-004-SE-06592-Xi		X
5		1150		X		H-006-005-SE-06592-Xi		X
7		1140		X		H-006-007-SE-06592-Xi		X
6		1145		X		H-006-006-SE-06592-Xi		X
6		1145		X		H-006-006-SE-06592-DU		X

CAS TEAR III

BILL TO: C-188-92

LAB ID

FOR LAB USE ONLY

LAB#

LAB#

PROJECT NO.

ACK | VERIFIED

QUOTE# | BS

NO. OF SAMP | PG | OF

REMARKS: 1 sample

SAMPLED BY AND TITLE: John Childs / EIT	DATE/TIME: 3/5/92 1330	RELINQUISHED BY:	DATE/TIME: 3/5/92 1330
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME
RECEIVED BY LAB: Ruth Allman	DATE/TIME: 3/5/92 1330	SAMPLE SHIPPED VIA: UPS BUS FED-EX (HAND) OTHER ____	AIR BILL#
REMARKS			

HAZWRAP/NEESA Y N

QC LEVEL 1 2 3

COC | ICE

ANA REQ | TEMP

CUST SEAL | Ph

SAMPLE COND.

ENTERED INTO LIMS ____ COC REVIEWED ____

REV 6/89 FORM 240

Columbia Analytical Services, Inc.

March 13, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.EO**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on March 6, 1992. Preliminary results were transmitted via facsimile on March 9, 1992. For your reference, these analyses have been assigned our work order number K921407.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/so

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/06/92
Project:	#PDX32451.EO	**Date Analyzed:**	03/09/92
Sample Matrix:	Soil	**Work Order No.:**	K921407

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-001-SO-066-92-XX	K1407-1	0.2	16.4
H-006-002-SO-06692-XX	K1407-2	0.2	39.6
H-006-003-SO-06692-XX	K1407-3	0.2	30.0
Method Blank	K1407-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by _____ Date 3-16-92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/06/92
Project:	#PDX32451.EO	**Date Analyzed:**	03/09/92
Sample Matrix:	Soil	**Work Order #:**	K921407

Solids, Total
EPA Method Modified 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-001-SO-066-92-XX	K1407-1	88.6
H-006-002-SO-06692-XX	K1407-2	90.4
H-006-003-SO-06692-XX	K1407-3	76.0

Approved by Jeff Clark Date 3-16-92

00002

APPENDIX A

LABORATORY QC RESULTS

• Telephone 206/577-7222 • Fax 206/636-106

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/06/92
Project:	#PDX32451.EO	**Date Analyzed:**	03/09/92
Sample Matrix:	Soil	**Work Order #:**	K921407

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-001-SO-066-92-XX	K1407-1	0.2	16.4	20.1	18.2	20

MRL Method Reporting Limit

Approved by Jeff Clutter Date 3-16-92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/06/92
Project:	#PDX32451.EO	**Date Analyzed:**	03/09/92
Sample Matrix:	Soil	**Work Order #:**	K921407

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery
H-006-001-SO-066-92-XX	K1407-1	0.2	0.5	16.4	28.5	NA

MRL Method Reporting Limit
NA Not Applicable because of the sample matrix. Accuracy of spike recovery value is reduced since the sample concentration was greater than four times the amount spiked.

Approved by _____ Date 3-16-92

00005

COLUMBIA ANALYTICAL SERVICES, INC.

nt: Weyerhaeuser Paper Company
ect: #PDX32451.EO
ple Matrix: Soil

Work Order #: K921407

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

ce: EPA LCS (0287)

yte	Method	True Value	Result	Control Limits
cury	7471	12.7	12.6	8.5-17.0

roved by Jeff Clinton Date 3-16-92

00006

APPENDIX B

CHAIN OF CUSTODY INFORMATION

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Columbia Analytical Services inc.

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222, FAX (206) 636-1068

K 1407

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/6/92 PAGE 1 OF 2

PROJECT NAME WEYCO # PDX3245I.E0

PROJECT MNGR STU BROWN

COMPANY/ADDRESS CH2M HILL

2020 SW 4TH AVE

PDX, OR 97201 PHONE 503/224/9190

SAMPLERS SIGNATURE

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED: Total Mercury 7471	REMARKS
H-006-001-SO-06692-XX	3/6/92	1430		SOIL	1	X	
H-006-002-SO-06692-XX	3/6/92	1430			1	X	
H006-003-SO-06692-XX	3/6/92	1430			1	X	

Base/Neu/Acid Organics GC/MS 625/8270; Volatile Organics GC/MS 624/8240; Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐; Pesticides/PCBs 608/8080; Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐; TPH/Gas: BTEX 5030/8015/8020 Gas ☐ BTEX ☐; TPH/8015 Modified Diesel ☐ Hydrocarbon Scan ☐; TPH - HCID; TCLP Metals ☐ Semi VOA ☐ VOA ☐ Pest/Herb ☐; Metals (total or dissolved) List Below; Cyanide; pH, Cond, Cl, SO_4, PO_4, F, Br, NO_2, NO_3 (circle); Nitr-N, COD, Total-P, TKN, TOC (circle); Total Organic Halides (TOX) 9020

RELINQUISHED BY:	RECEIVED BY:	TURNAROUND REQUIREMENTS:	REPORT REQUIREMENTS	INVOICE INFORMATION:	SAMPLE RECEIPT:
Signature: John Childs	Signature: Lori K. Hamm	X 24 hr ___ 48 hr ___ 5 day	___ I. Routine Report	P.O. # C-188-92	Shipping VIA:
Printed Name: CH2M HILL	Printed Name: CAS	___ Standard (~ 10-15 working days)	___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)	Bill to: Weyco	Shipping #:
Firm: 3/6/92 1520	Firm: 3/6/92 1520	___ Provide Verbal Preliminary Results	___ III. Data Validation Report (includes All Raw Data)	Attn: Jim Sims	Condition:
Date/Time	Date/Time	___ Provide FAX Preliminary Results	___ IV. CLP Deliverable Report		Lab No.:
		Requested Report Date ___			

RELINQUISHED BY:	RECEIVED BY:	SPECIAL INSTRUCTIONS/COMMENTS:
Signature	Signature	CAS TEAR III
Printed Name	Printed Name	24 HR TURN AROUND
Firm	Firm	
Date/Time	Date/Time	

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

8V00

Columbia Analytical Services inc.

March 16, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on March 10, 1992. Preliminary results were transmitted via facsimile on March 11, 1992. For your reference, these analyses have been assigned our work order number K921471.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/tlt

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Sediment	**Work Order #:**	K921471

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-003-SE-07092-XF	K1471-1	0.2	2.3
H-006-004-SE-07092-XF	K1471-2	0.2	0.5
H-006-005-SE-07092-XF	K1471-3	0.2	3.6
H-006-006-SE-07092-XF	K1471-4	0.2	7.2
H-006-006-SE-07092-DU	K1471-5	0.2	0.5
H-006-007-SE-07092-XF	K1471-6	0.2	0.3
Method Blank	K1471-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Jeff Clute Date 3-16-92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Weyerhaeuser Paper Company
Project: #PDX32451.E0
Sample Matrix: Sediment

Date Received: 03/10/92
Work Order #: K921471

Solids, Total
EPA Method 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-003-SE-07092-XF	K1471-1	38.0
H-006-004-SE-07092-XF	K1471-2	30.1
H-006-005-SE-07092-XF	K1471-3	14.1
H-006-006-SE-07092-XF	K1471-4	77.4
H-006-006-SE-07092-DU	K1471-5	67.8
H-006-007-SE-07092-XF	K1471-6	33.8

Approved by Jeff Clark Date 3-16-92

00002

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APPENDIX A

LABORATORY QC RESULTS

P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Sediment	**Work Order #:**	K921471

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-006-SE-07092-DU	K1471-5	0.2	0.5	0.6	0.6	17

MRL Method Reporting Limit

Approved by _____ Date 3-16-92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Sediment	**Work Order #:**	K921471

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-006-SE-07092-DU	K1471-5	0.2	7.2	0.5	7.9	103	60-130

MRL Method Reporting Limit

Approved by Jeff Carter Date 3-16-92

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company **Work Order #:** K921471
Project: #PDX32451.E0
Sample Matrix: Sediment

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA LCS 0287

Analyte	Method	True Value	Result	Control Limits
Mercury	7471	12.7	15	8.5-17.0

Approved by _____ Date 3-16-92

00006

APPENDIX B

CHAIN OF CUSTODY INFORMATION

00007

Columbia Analytical Services, Inc.

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222, FAX (206) 636-1068

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/10/92 PAGE 1 OF 1

PROJECT NAME WEYCO #PDX3245.E0

PROJECT MNGR STU BROWN / PDX

COMPANY/ADDRESS CH2M HILL

2020 SW 4th AVE

PDX, OR 97034 PHONE 503/224-9190

SAMPLERS SIGNATURE [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	TOTAL Hg 7471	REMARKS
H-006-003-SE-0709 2-	3/10/92	0900 XF	K1471-1	Sediment	1	X	
004	3/10/92	0900	1471-2		1	X	
005			1471-3		1	X	
006			1471-4		1	X	
H-006-006-SE-0709 2-		DU	1471-5		1	X	
H-006-007-SE-0709 2-	3/10/92	0900 XF	1471-6		1	X	

ANALYSIS REQUESTED

Base/Neu/Acid Organics GC/MS 625/8270 ☐ Volatile Organics GC/MS 624/8240 ☐ Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐ Pesticides/PCBs 608/8080 ☐ Total Petroleum Hydrocarbons EPA 418.1 ☐ TPH Gas/BTEX 5030/8015/8020 Oregon 418.1 ☐ Gas ☐ BTEX ☐ TPH 8015 Modified Diesel ☐ Hydrocarbon Scan ☐ TPH - HCID ☐ TCLP Metals ☐ Semi Pes/V ☐ VOA ☐ VOA ☐ Herb ☐ Metals (total or dissolved) List Below ☐ Cyanide ☐ pH, Cond, Cl, SO4, PO4, F, Br, NO2, NO3 (circle) ☐ Nitr-N, COD, Total-P, TKN, TOC (circle) ☐ Total Organic Halides (TOX) 9020 ☐

RELINQUISHED BY: [signature] Signature; John C. Childs Printed Name; CH2MHILL Firm; 3/10/92 / 1056 Date/Time

RECEIVED BY: [signature] Signature; [illegible] Printed Name; [illegible] Firm; 3/10/92 1102 Date/Time

RELINQUISHED BY: Signature / Printed Name / Firm / Date/Time

RECEIVED BY: Signature / Printed Name / Firm / Date/Time

TURNAROUND REQUIREMENTS:
___ 24 hr X 48 hr ___ 5 day
___ Standard (~ 10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ____

REPORT REQUIREMENTS
___ I. Routine Report
___ II. Report (Includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O. # C-188-92
Bill to: Jim Sims
Weyerhaeuser

SAMPLE RECEIPT:
Shipping VIA:
Shipping #:
Condition:
Lab No.:

SPECIAL INSTRUCTIONS/COMMENTS:
(TEAR III CAS)
48 HR Turnaround

80008

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

Columbia Analytical Services, Inc.

March 16, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the samples submitted to our lab on March 10, 1992. Preliminary results were transmitted via facsimile on March 11, 1992. For your reference, these analyses have been assigned our work order number K921457.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/tlt

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/10/92
Sample Matrix:	Soil	**Work Order #:**	K921457

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-004-S0-06992-XX	K1457-1	0.2	47
H-006-005-S0-06992-XX	K1457-2	0.2	78
H-006-006-S0-06992-XX	K1457-3	0.2	76
H-006-007-S0-06992-XX	K1457-4	0.2	32
H-006-008-S0-06992-XX	K1457-5	0.2	16
H-006-009-S0-06992-XX	K1457-6	0.2	10
H-006-010-S0-06992-DU	K1457-7	0.2	1.7
H-006-010-S0-06992-XX	K1457-8	0.2	2.2
Method Blank	K1457-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Jeff Ate Date 3-16-92

00001

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Weyerhaeuser Paper Company
Project: #PDX32451.E0
Sample Matrix: Soil

Date Received: 03/10/92
Work Order #: K921457

Solids, Total
EPA Method 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-004-S0-06992-XX	K1457-1	70.1
H-006-005-S0-06992-XX	K1457-2	83.4
H-006-006-S0-06992-XX	K1457-3	82.8
H-006-007-S0-06992-XX	K1457-4	86.6
H-006-008-S0-06992-XX	K1457-5	82.7
H-006-009-S0-06992-XX	K1457-6	85.2
H-006-010-S0-06992-DU	K1457-7	85.5
H-006-010-S0-06992-XX	K1457-8	85.6

Approved by _____ Date 3-16-92

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APPENDIX A

LABORATORY QC RESULTS

17 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company
Project: #PDX32451.E0
Sample Matrix: Soil

Date Received: 03/10/92
Date Analyzed: 03/10/92
Work Order #: K921457

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-004-S0-06992-XX	K1457-1	0.2	47	50	48	6

MRL Method Reporting Limit

Approved by _____ Date 3-16-92

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company
Project: #PDX32451.E0
Sample Matrix: Soil

Date Received: 03/10/92
Date Analyzed: 03/10/92
Work Order #: K921457

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-004-S0-06992-XX	K1457-1	0.2	31	47	77	97	60-130

MRL Method Reporting Limit

Approved by Jeff Carter Date 3-16-92

00005

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company **Work Order #:** K921457
Project: #PDX32451.E0
Sample Matrix: Soil

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA LCS 0287

Analyte	Method	True Value	Result	Control Limits
Mercury	7471	12.7	16	8.5-17.0

Approved by _____ Date 3-16-92

APPENDIX B

CHAIN OF CUSTODY INFORMATION

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APPENDIX B

CHAIN OF CUSTODY INFORMATION

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Columbia Analytical Services inc.

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/9/92 PAGE 1 OF 1

PROJECT NAME WEYCO #PDX32451.E0

PROJECT MNGR. STU BROWN/CH2M HILL

COMPANY/ADDRESS 2020 SW 4th AVE

PORTLAND, OR 97034

PHONE 503/224/9190

SAMPLERS SIGNATURE [signature]

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240	Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐	Pesticides/PCBs 608/8080	Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐	TPH/Gas/BTEX 5030/8015/8020 Gas ☐ BTEX ☐	TPH/8015 Modified Diesel ☐ Hydrocarbon Scan ☐	TPH - HCID	TCLP Metals ☐ VOA ☐ Semi VOA ☐ Pest/Herb ☐	Metals (total or dissolved) List Below	Cyanide	pH, Cond, Cl, SO_4, PO_4, F, Br, NO_2, NO_3 (circle)	NH_3-N, COD, Total-P, TKN, TOC (circle)	Total Organic Halides (TOX) 9020	Total Hg/7471		REMARKS
H-006-004-SO-06992-XX	3/9/92	1600	192-1457-1	SOIL	1															X		
005	3/9/92	1600	-2	↓	↓															X		
006	↓	↓	-3	↓	↓															X		
007	↓	↓	-4	↓	↓															X		
008	↓	↓	-5	↓	↓															X		
009	↓	↓	-6	↓	↓															X		
H-006-010-SO-06992-DU	↓	↓	-7	↓	↓															X		

RELINQUISHED BY:
Signature [signature]
Printed Name John L. Childs
Firm CH2M HILL
Date/Time 3/9/92 / 1700

RECEIVED BY:
Signature [signature]
Printed Name Lana Jordan
Firm CAS 3-10-92
Date/Time 0800

TURNAROUND REQUIREMENTS:
X 24 hr ___ 48 hr ___ 5 day
___ Standard (~10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ______

REPORT REQUIREMENTS
___ I. Routine Report
___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O. # C-188-92
Bill to: WEYCO
ATTN JIM SIMS

SAMPLE RECEIPT:
Shipping VIA: ______
Shipping #: ______
Condition: ______
Lab No.: ______

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

CAS TEAR III

24HR TURNAROUND

Recvd ~~two~~ one btls ~~??~~ labeled ~~sample~~ H-006-010-SO-06992-~~XX~~ not listed on chain LJ. 3-10-92

CHAIN OF CUSTODY 3043 (CAS)

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

00009

Columbia Analytical Services inc.

March 17, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on March 10, 1992. Preliminary results were transmitted via facsimile on March 11, 1992. For your reference, these analyses have been assigned our work order number K921497.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/rdb

cc: Stu Brown (CH2M Hill)

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Soil	**Work Order #:**	K921497

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-011-S0-07092-XX	K1497-1	0.2	47
H-006-012-S0-07092-XX	K1497-2	0.2	4.1
H-006-013-S0-07092-XX	K1497-3	0.2	2.2
H-006-013-S0-07092-DU	K1497-4	0.2	0.6
H-006-014-S0-07092-XX	K1497-5	0.2	42
H-006-015-S0-07092-XX	K1497-6	0.2	38
H-006-016-S0-07092-XX	K1497-7	0.2	190
H-006-017-S0-07092-XX	K1497-8	0.2	400
H-006-018-S0-07092-XX	K1497-9	0.2	3.7
H-006-019-S0-07092-XX	K1497-10	0.2	110

MRL Method Reporting Limit

Approved by Jeff Clinton Date 3-18-92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Soil	**Work Order #:**	K921497

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-020-S0-07092-XX	K1497-11	0.2	6.1
H-006-021-S0-07092-XX	K1497-12	0.2	3.8
H-006-022-S0-07092-XX	K1497-13	0.2	50
H-006-023-S0-07092-XX	K1497-14	0.2	19
H-006-024-S0-07092-XX	K1497-15	0.2	44
H-006-025-S0-07092-XX	K1497-16	0.2	46
H-006-017-S0-07092-DU	K1497-17	0.2	380
Method Blank	K1497-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by _____ Date 3-18-92

00002

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APPENDIX A

LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Soil	**Work Order #:**	K921497

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-011-S0-07092-XX	K1497-1	0.2	47	44	46	7
H-006-020-S0-07092-XX	K1497-11	0.2	6.1	6.1	6.1	<1

MRL Method Reporting Limit

Approved by _____ Date 3-18-92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/10/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/11/92
Sample Matrix:	Soil	**Work Order #:**	K921497

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-011-S0-07092-XX	K1497-1	0.2	22	47	72	114	60-130
H-006-020-S0-07092-XX	K1497-11	0.2	23	6.1	27	91	60-130

MRL Method Reporting Limit

Approved by _____ Date 3-18-92

00005

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company **Work Order #:** K921497
Project: #PDX32451.E0
Sample Matrix: Soil

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA LCS 0287

Analyte	Method	True Value	Result	Control Limits
Mercury	7471	12.7	14	8.5-17.0

Approved by Date 3-18-92

00006

APPENDIX B

CHAIN OF CUSTODY INFORMATION

00007

Columbia Analytical Services inc.

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/10/92 PAGE 1 OF 2

PROJECT NAME WCXCO # PDX3245I.EP

PROJECT MNGR STU BROWN

COMPANY/ADDRESS CH2M HILL

2020 SW 4TH AVE

PDX, OR 97034 PHONE 503/224-9190

SAMPLERS SIGNATURE John L. Childs

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED: Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240	Halogenated or Aromatic Volatiles 601/8010 ☐	Pesticides/PCBs 608/8080	Total Petroleum Hydrocarbons EPA 418.1 ☐	TPH/Gas/BTEX/5030/8015/8020 Oregon 418.1 ☐	TPH/Gas ☐ BTEX ☐	TPH/8015 Modified Diesel ☐	TPH - HCID Hydrocarbon Scan ☐	TCLP Metals ☐	Semi PosV Metals ☐ VOA ☐ VOA ☐ Herb ☐ List Below (total or dissolved)	Cyanide	pH, Cond, Cl, SO4, PO4, F, Br NO2, NO3, (circle)	NH3-N, COD, Total-P, TKN, TOC (circle)	Total Organic Halides (TOX) 9020	TOX / Hg/7471		REMARKS
H-006-011-SO-07092-XX				SOIL	1																X		
012					1																X		
013					1																X		
H-006-013-SO-07092-DU					1																X		
H-006-014-SO-07092-XX					1																X		
015					1																X		
016					1																X		
017					1																X		
018					1																X		
019					1																X		

RELINQUISHED BY:

Signature: John L. Childs

Printed Name: John L. Childs

Firm: CH2M HILL

Date/Time: 3/10/92 / 1630

RECEIVED BY:

Signature: Ruth Allison

Printed Name: Ruth Allison

Firm: CAS

Date/Time: 3/10/92 1645

TURNAROUND REQUIREMENTS:

X 24 hr ___ 48 hr ___ 5 day

___ Standard (~ 10-15 working days)

___ Provide Verbal Preliminary Results

___ Provide FAX Preliminary Results

Requested Report Date: ___

REPORT REQUIREMENTS

___ I. Routine Report

___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)

___ III. Data Validation Report (includes All Raw Data)

___ IV. CLP Deliverable Report

INVOICE INFORMATION:

P.O. #: ___

Bill to: Weyerhaeuser C.

Attn: JIM SIMS

SAMPLE RECEIPT:

Shipping VIA: ___

Shipping #: ___

Condition: ___

Lab No.: ___

RELINQUISHED BY:

Signature: ___

Printed Name: ___

Firm: ___

Date/Time: ___

RECEIVED BY:

Signature: ___

Printed Name: ___

Firm: ___

Date/Time: ___

SPECIAL INSTRUCTIONS/COMMENTS:

TEAR III CAS

24 HR TURN AROUND

COC # 1601

80008

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

Columbia Analytical Services, Inc.

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/10/92 PAGE 2 OF 2

PROJECT NAME Weyco # PDX32451.E0

PROJECT MNGR STU BROWN

COMPANY/ADDRESS CH2M HILL

2020 SW 4th AVE

PDX, OR 97034 PHONE 503/2249190

SAMPLERS SIGNATURE

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED: Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240	Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐	Pesticides/PCBs 608/8080	Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐	TPH/Gas/BTEX/5030/8015/8020 Gas ☐ BTEX ☐	TPH/8015 Modified Diesel ☐	Hydrocarbon Scan ☐ TPH - HCID	TCLP Metals ☐	Semi PesV Metals ☐ VOA ☐ VOA ☐ Herb ☐ List Below	Cyanide	pH, Cond, Cl, SO4, PO4, F, Br NO2, NO3 (circle)	Nitr-N, COD, Total P, TKN, TOC (circle)	Total Organic Halides (TOX) 9020	Tot-1 Hg/7471		REMARKS
H-006-020-SO-07092-XX				Soil	1															X		
021					1															X		
022					1															X		
023					1															X		
024					1															X		
025					1															X		
H-006-017-SO-07092-DU					1															X		

RELINQUISHED BY:

Signature: [signature]

Printed Name: John L. Childs

Firm: CH2M HILL

Date/Time: 3/10/92 / 1630

RECEIVED BY:

Signature: Ruth Allison

Printed Name: Ruth Allison

Firm: CAS

Date/Time: 3/10/92 1645

TURNAROUND REQUIREMENTS:

X 24 hr ___ 48 hr ___ 5 day

___ Standard (~ 10-15 working days)

___ Provide Verbal Preliminary Results

___ Provide FAX Preliminary Results

Requested Report Date ___

REPORT REQUIREMENTS

___ I. Routine Report

___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)

___ III. Data Validation Report (includes All Raw Data)

___ IV. CLP Deliverable Report

INVOICE INFORMATION:

P.O. # C-1880[illegible]-92

Bill to: Weyco

Attn: Jim Sims

SAMPLE RECEIPT:

Shipping VIA: ___

Shipping #: ___

Condition: ___

Lab No.: ___

RELINQUISHED BY:

Signature

Printed Name

Firm

Date/Time

RECEIVED BY:

Signature

Printed Name

Firm

Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

CAS TEAR III

24 HR TURN AROUND

COC # 1601

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

Columbia Analytical Services inc.

March 18, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on March 13, 1992. Preliminary results were transmitted via facsimile on March 13, 1992. For your reference, these analyses have been assigned our work order number K921552.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/das

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/13/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/13/92
Sample Matrix:	Sediment	**Work Order #:**	K921552

Solids, Total
EPA Method 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-004-S0-07292-XX	K1552-1	73.1
H-006-005-S0-07292-XX	K1552-2	61.3
H-006-006-S0-07292-XX	K1552-3	78.0
H-006-007-S0-07292-XX	K1552-4	69.3
H-006-008-S0-07292-XX	K1552-5	83.1
H-006-009-S0-07292-XX	K1552-6	83.7
H-006-015-S0-07292-XX	K1552-7	84.3
H-006-016-S0-07292-XX	K1552-8	85.6
H-006-017-S0-07292-XX	K1552-9	78.0
H-006-018-S0-07292-XX	K1552-10	83.7

Approved by _____ Date 3-19-92

00001

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/13/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/13/92
Sample Matrix:	Sediment	**Work Order #:**	K921552

Solids, Total
EPA Method 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-019-S0-07292-XX	K1552-11	90.6
H-006-022-S0-07292-XX	K1552-12	84.1
H-006-023-S0-07292-XX	K1552-13	83.2
H-006-024-S0-07292-XX	K1552-14	82.6
H-006-025-S0-07292-XX	K1552-15	89.4
H-018-026-S0-07292-XX	K1552-16	89.7
H-036-027-S0-07292-XX	K1552-17	93.1
H-006-028-S0-07292-XX	K1552-18	92.5
H-006-019-S0-07292-DU	K1552-19	87.4
H-036-027-S0-07292-DU	K1552-20	92.9

Approved by Jeff Clutter Date 3-19-92

00002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/13/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/13/92
Sample Matrix:	Soil	**Work Order #:**	K921552

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-004-S0-07292-XX	K1552-1	0.2	23
H-006-005-S0-07292-XX	K1552-2	0.2	580
H-006-006-S0-07292-XX	K1552-3	0.2	810
H-006-007-S0-07292-XX	K1552-4	0.2	310
H-006-008-S0-07292-XX	K1552-5	0.2	170
H-006-009-S0-07292-XX	K1552-6	0.2	41
H-006-015-S0-07292-XX	K1552-7	0.2	200
H-006-016-S0-07292-XX	K1552-8	0.2	45
H-006-017-S0-07292-XX	K1552-9	0.2	220
H-006-018-S0-07292-XX	K1552-10	0.2	6.2

MRL Method Reporting Limit

Approved by Jeff Christian Date 3-19-92

00003

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/13/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/13/92
Sample Matrix:	Soil	**Work Order #:**	K921552

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-019-S0-07292-XX	K1552-11	0.2	31
H-006-022-S0-07292-XX	K1552-12	0.2	43
H-006-023-S0-07292-XX	K1552-13	0.2	16
H-006-024-S0-07292-XX	K1552-14	0.2	110
H-006-025-S0-07292-XX	K1552-15	0.2	4.4
H-018-026-S0-07292-XX	K1552-16	0.2	4.8
H-036-027-S0-07292-XX	K1552-17	0.2	ND
H-006-028-S0-07292-XX	K1552-18	0.2	3.1
H-006-019-S0-07292-DU	K1552-19	0.2	20
H-036-027-S0-07292-DU	K1552-20	0.2	ND
Method Blank	K1552-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Jeff Clinton Date 3-19-92

00004

APPENDIX A

LABORATORY QC RESULTS

1[illegible]7 South 12th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/13/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/13/92
Sample Matrix:	Soil	**Work Order #:**	K921552

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-004-S0-07292-XX	K1552-1	0.2	23	25	24	8
H-006-019-S0-07292-XX	K1552-11	0.2	31	28	30	10

MRL Method Reporting Limit

Approved by _____ Date 3-19-92

U0006

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/13/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/13/92
Sample Matrix:	Soil	**Work Order #:**	K921552

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-004-S0-07292-XX	K1552-1	0.2	26	23	43	77	60-130
H-006-019-S0-07292-XX	K1552-11	0.2	20	31	46	75	60-130

MRL Method Reporting Limit

Approved by _____ Date 3-19-92

00007

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company **Work Order #:** K921552
Project: #PDX32451.E0
Sample Matrix: Soil

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA LCS 0287

Analyte	Method	True Value	Result	Control Limits
Mercury	7471	12.7	13	8.5-17.0

Approved by Jeff Christian Date 3-19-92

00008

APPENDIX B

CHAIN OF CUSTODY INFORMATION

1[illegible]7 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

Columbia Analytical Services inc.

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222, FAX (206) 636-1068

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/12/92 PAGE 1 OF 2

PROJECT NAME WEYCO # PDX32451.E0

PROJECT MNGR. STU BROWN / CHZMHILL

COMPANY/ADDRESS 2020 SW 4th AVE

PDX, OR 97034

PHONE 503/2249190

SAMPLERS SIGNATURE John L. Childs

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED: Total 418.1	Total 7471	REMARKS
H-006-004-SO-07292-XX	3/12/92	1600				X		
H-006-005-	3/12/92	1600				X		
H-006-006-						X		
H-006-007-						X		
H-006-008-						X		
H-006-009-						X		
H-006-015						X		
H-006-016						X		
H-006-017						X		
H-006-018-SO-07292-XX						X		

ANALYSIS REQUESTED: Base/Neu/Acid Organics GCMS 625/8270; Volatile Organics GCMS 624/8240; Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐; Pesticides/PCBs 608/8080; Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐; TPH/Gas/BTEX/5030/8015/8020 Gas ☐ BTEX ☐ TPH/8015 Modified Diesel ☐ Hydrocarbon Scan ☐; TPH - HCID; TCLP Metals ☐ VOA ☐ Semi ☐ Pest/ ☐ VOA ☐ Herb ☐ Metals (total or dissolved) List Below; Cyanide; pH, Cond, Cl, SO_4, PO_4, F, Br, NO_2, NO_3 (circle); NH_3-N, COD, Total P, TKN, TOC (circle); Total Organic Halides (TOX) 9020

RELINQUISHED BY:
Signature: John L. Childs
Printed Name: John L. Childs
Firm: CHZMHILL
Date/Time: 3/12/92 / 1915

RECEIVED BY:
Signature: Ruth Allison
Printed Name: Ruth Allison
Firm: CAS
Date/Time: 3/13/92 0800

TURNAROUND REQUIREMENTS:
X 24 hr ___ 48 hr ___ 5 day
___ Standard (~ 10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ___

REPORT REQUIREMENTS
___ I. Routine Report
___ II. Report (includes DUP,MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O. # C-188-92
Bill to: Weyco
Attn.: Jim Sims

SAMPLE RECEIPT:
Shipping VIA:
Shipping #:
Condition:
Lab No.:

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:
CAS TEAR III
24 HR Turnaround ⇒ 3-4pm on 3/13/92
COC 3047/3048

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

00010

K1002

Columbia Analytical Services inc.

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222, FAX (206) 636-1068

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/12/92 PAGE 2 OF 2

PROJECT NAME WEYCO # PDX32451.E0

PROJECT MNGR STU BROWN / PDX

COMPANY/ADDRESS CH2M HILL

2020 SW 4th AVE

PDX, OR 97034 PHONE 503/224-9190

SAMPLERS SIGNATURE [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240	Halogenated or Aromatic Volatiles 601/8010 □ 602/8020 □	Pesticides/PCBs 608/8080	Total Petroleum Hydrocarbons EPA 418.1 □ Oregon 418.1 □	TPH/Gas/BTEX 5030/8015/8020 Gas □ BTEX □	TPH/8015 Modified Diesel □ Hydrocarbon Scan □	TPH - HCID	TCLP Metals □ VOA □ Semi VOA □ Pest □ Herb □	Metals (total or dissolved) List Below	Cyanide	pH, Cond, Cl, SO_4, PO_4, F, Br NO_2, NO_3 (circle)	NH_3-N, COD, Total-P, TKN, TOC (circle)	Total Organic Halides (TOX) 9020	Total Hg/7471		REMARKS
H-006-019-SO-07292-XX	3/12/92	1600		SOIL																X		
H-006-022	3/12/92	1600																		X		
H-006-023-																				X		
H-006-024-																				X		
H-006-025-																				X		
H-~~006~~ 018-026-																				X		
H-036-027-SO-07292-XX																				X		
H-006-028-SO-07292-XX																				X		
H-006-019-SO-07292-DU																				X		
H-036-027-SO-07292-DU																				X		

RELINQUISHED BY:
[signature] Signature
John L. Childs Printed Name
CH2M HILL Firm
3/12/92 / 1915 Date/Time

RECEIVED BY:
Ruth Allison [signature] Signature
Ruth Allison Printed Name
CAS Firm
3/13/92 0800 Date/Time

TURNAROUND REQUIREMENTS:
X 24 hr ___ 48 hr ___ 5 day
___ Standard (~ 10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ______

REPORT REQUIREMENTS
___ I. Routine Report
___ II. Report (includes DUP,MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV.CLP Deliverable Report

INVOICE INFORMATION:
P.O. # C-188-92
Bill to: WEYCO
Attn: Jim Sims

SAMPLE RECEIPT:
Shipping VIA: ______
Shipping #: ______
Condition: ______
Lab No.: ______

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:
CAS TEAR III
24 HR ⇒ 3-4pm - ON 3/13/92
COC 3047-3048

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

00011

Columbia Analytical Services inc.

March 18, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on March 16, 1992. Preliminary results were transmitted via facsimile on March 16, 1992. For your reference, these analyses have been assigned our work order number K921602.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/das

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/16/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/16/92
Sample Matrix:	Soil	**Work Order #:**	K921602

Solids, Total
EPA Method 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-029-SO-07692-XX	K1602-1	75.4
H-006-030-SO-07692-XX	K1602-2	78.3
H-006-031-SO-07692-DU	K1602-3	60.8
H-006-031-SO-07692-XX	K1602-4	73.7
H-006-032-SO-07692-XX	K1602-5	65.7
H-006-033-SO-07692-XX	K1602-6	69.6
H-006-034-SO-07692-XX	K1602-7	73.5

Approved by _____ Date 3-19-92

00001

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/16/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/16/92
Sample Matrix:	Soil	**Work Order #:**	K921602

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-029-SO-07692-XX	K1602-1	0.2	339
H-006-030-SO-07692-XX	K1602-2	0.2	88.0
H-006-031-SO-07692-DU	K1602-3	0.2	227
H-006-031-SO-07692-XX	K1602-4	0.2	173
H-006-032-SO-07692-XX	K1602-5	0.2	242
H-006-033-SO-07692-XX	K1602-6	0.2	158
H-006-034-SO-07692-XX	K1602-7	0.2	143
Method Blank	K1602-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by _____ Date 3-19-92

00002

317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

APPENDIX A

LABORATORY QC RESULTS

1317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/16/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/16/92
Sample Matrix:	Soil	**Work Order #:**	K921602

QA/QC Report
Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-031-SO-07692-DU	K1602-3	0.2	227	216	222	5

MRL Method Reporting Limit

Approved by Jeff Clutter Date 3-19-92

00004

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/16/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/16/92
Sample Matrix:	Soil	**Work Order #:**	K921602

QA/QC Report
Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-031-SO-07692-DU	K1602-3	0.2	14.1	227	195	NA	60-130

MRL Method Reporting Limit
NA Not Applicable because of the sample matrix. Accuracy of spike recovery value is reduced since the sample concentration was greater than four times the amount spiked.

Approved by Jeff Christian Date 3-19-92

00005

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company **Work Order #:** K921602
Project: #PDX32451.E0
Sample Matrix: Soil

QA/QC Report
Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA LCS 0287

Analyte	Method	True Value	Result	Control Limits
Mercury	7471	12.7	12.0	8.5-17.0

Approved by Jeff Christian Date 3-19-92

U0006

APPENDIX B

CHAIN OF CUSTODY INFORMATION

17 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

Columbia Analytical Services inc.

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222, FAX (206) 636-1068

K1602

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE_____ PAGE_____ OF_____

PROJECT NAME WEYCO # PDX 32451.E0

PROJECT MNGR. STU BROWN

COMPANY/ADDRESS CH2M HILL

2020 SW 4TH AVE

PDX, OR 97034 PHONE 503/227-3030

SAMPLERS SIGNATURE

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED: Total Organic Halides (TOX) 9020	HS/747	REMARKS
H-006-029-SO-	3/16/92 07692	1100 XX	K1602-1	Soil	1	X		
030	3/16/92	1100	-2		1	X		
031-SO-	07692	DU	-3		1	X		
031-SO-	3/16/92 07692	1100 XX	-4		1	X		
032	3/16/92	1100	-5		1	X		
033			-6		1	X		
034			-7		1	X		

RELINQUISHED BY:

Signature

CH2M HILL

Printed Name John Childs

Firm 3/16/92 1217

Date/Time

RECEIVED BY:

Signature Lori K. Hawn

Printed Name CAS

Firm 3/16/92 1217

Date/Time

TURNAROUND REQUIREMENTS:

___ 24 hr ___ 48 hr ___ 5 day

___ Standard (~ 10-15 working days)

___ Provide Verbal Preliminary Results

___ Provide FAX Preliminary Results

Requested Report Date _____

REPORT REQUIREMENTS

___ I. Routine Report

___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)

___ III. Data Validation Report (includes All Raw Data)

___ IV. CLP Deliverable Report

INVOICE INFORMATION:

P.O. # C-188-92

Bill to: Weyco

Jim Sims

SAMPLE RECEIPT:

Shipping VIA: _____

Shipping #: _____

Condition: _____

_____

Lab No.: _____

RELINQUISHED BY:

Signature

Printed Name

Firm

Date/Time

RECEIVED BY:

Signature

Printed Name

Firm

Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:

CAS TEAR III

6 HR Turnaround

800011

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

Columbia Analytical Services Inc.

March 24, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the rush samples submitted to our lab on March 18, 1992. Preliminary results were transmitted via facsimile on March 19, 1992. For your reference, these analyses have been assigned our work order number K921687.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/tlt

317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/18/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/19/92
Sample Matrix:	Soil	**Work Order No.:**	K921687

Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Result
H-006-035-SO-07892-XX	K1687-1	0.2	6.0
H-006-036-SO-07892-XX	K1687-2	0.2	4.4
H-006-036	K1687-3	0.2	2.2
H-006-037-SO-07892-XX	K1687-4	0.2	1.5
H-006-038-SO-07892-XX	K1687-5	0.2	12.6
Method Blank	K1687-MB	0.2	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Jeff Christian Date 3-24-92

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/18/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/19/92
Sample Matrix:	Soil	**Work Order No.:**	K921687

Solids, Total
EPA Method Modified 160.3
Percent (%)

Sample Name	Lab Code	Result
H-006-035-SO-07892-XX	K1687-1	89.0
H-006-036-SO-07892-XX	K1687-2	86.9
H-006-036	K1687-3	87.4
H-006-037-SO-07892-XX	K1687-4	83.4
H-006-038-SO-07892-XX	K1687-5	89.7

Approved by Jeff Clute Date 3-24-92

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APPENDIX A

LABORATORY QC RESULTS

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/18/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/19/92
Sample Matrix:	Soil	**Work Order No.:**	K921687

Duplicate Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-006-035-SO-07892-XX	K1687-1	0.2	6.0	6.2	6.1	2

MRL Method Reporting Limit

Approved by _____ Date 3-24-92

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/18/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/19/92
Sample Matrix:	Soil	**Work Order No.:**	K921687

Matrix Spike Summary
Total Mercury
EPA Method 7471
mg/Kg (ppm)
Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-006-035-SO-07892-XX	K1687-1	0.2	16.3	6.0	22.9	104	60-130

MRL Method Reporting Limit

Approved by Jeff Clute Date 3-24-92

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Weyerhaeuser Paper Company **Work Order No.:** K921687
Project: #PDX32451.E0
LCS Matrix: Soil

Laboratory Control Sample Summary
Total Metals
mg/Kg (ppm)
As Received Basis

Source: EPA LCS 0287

Analyte	EPA Method	True Value	Result	Control Limits
Mercury	7471	12.7	12.6	8.5-17.0

Approved by Jeff Clinton Date 3-24-92

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APPENDIX B

CHAIN OF CUSTODY INFORMATION

Columbia Analytical Services inc.

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222, FAX (206) 636-1068

K 1687

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE 3/18/92 PAGE 1 OF

PROJECT NAME WEYCO # PDX 37451.E0

PROJECT MNGR STU BROWN

COMPANY/ADDRESS CH2M HILL

2020 SW 4TH AVE

PDX, OR 97021 PHONE 503/2249190

SAMPLERS SIGNATURE

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	ANALYSIS REQUESTED	REMARKS
H-006-035-SO-07892-XX	3/18/92	1100		SOIL	1		
-036-	3/18/92	1100			1		
H-006-036-SO-07892-DU		1100			1		
H-006-037-SO-07892-XX		1100			1		
-038-	3/18/92	1100			1		

Analysis requested: Base/Neu/Acid Organics GC/MS 625/8270; Volatile Organics GC/MS 624/8240; Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐; Pesticides/PCBs 608/8080; Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐; TPH/Gas/BTEX 5030/8015/8020 Gas ☐ BTEX ☐; TPH/8015 Modified Diesel ☐ Hydrocarbon Scan ☐; TPH - HCID; TCLP Metals ☐ VOA ☐ Semi ☐ Pest ☐ Herb ☐; Metals (total or dissolved) List Below; Cyanide; pH, Cond, Cl, SO4, PO4, F, Br, NO2, NO3, (circle); NH3-N, COD, Total-P, TKN, TOC (circle); Total Organic Halides (TOX) 9020; Total Hg 7471

RELINQUISHED BY:	RECEIVED BY:
Signature: John L. Childs	Signature: Ruth Allison
Printed Name: CH2M HILL	Printed Name: CAS
Firm: 3/18/92 / 1300	Firm: 3/18/92 1455
Date/Time	Date/Time

RELINQUISHED BY:	RECEIVED BY:
Signature	Signature
Printed Name	Printed Name
Firm	Firm
Date/Time	Date/Time

TURNAROUND REQUIREMENTS:

X 24 hr ___ 48 hr ___ 5 day

___ Standard (~ 10-15 working days)

___ Provide Verbal Preliminary Results

___ Provide FAX Preliminary Results

Requested Report Date ___

REPORT REQUIREMENTS

___ I. Routine Report

___ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)

___ III. Data Validation Report (includes All Raw Data)

___ IV. CLP Deliverable Report

INVOICE INFORMATION:

P.O. # C-188-92

Bill to: WEYCO

ATTN: JIM SIMS

SAMPLE RECEIPT:

Shipping VIA:

Shipping #:

Condition:

Lab No.:

SPECIAL INSTRUCTIONS/COMMENTS:

CAS TEAR III

24 HR TURNAROUND

didn't receive sample H-006-036-SO-07892-DU / rec'd sample H-006-036 @ CAS LEM 3/18/92

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

Columbia Analytical Services, Inc.

March 24, 1992

Jim Sims
Weyerhaeuser Paper Company
P.O. Box 188
Longview, WA 98632

Re: **Project #PDX32451.E0**

Dear Jim:

Enclosed are the results of the rush sample submitted to our lab on March 18, 1992. Preliminary results were telephoned on March 18, 1992. For your reference, these analyses have been assigned our work order number K921672.

All analyses were performed in accordance with our laboratory's quality assurance program.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Jeff Christian

JC/rdb

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/18/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/18/92
Sample Matrix:	Water	**Work Order #:**	K921672

Dissolved Mercury
EPA Method 7470
µg/L (ppb)

Sample Name	Lab Code	MRL	Result
H-012-001-BT-07892-XX	K1672-1	0.5	0.6
Method Blank	K1672-MB	0.5	ND

MRL Method Reporting Limit
ND None Detected at or above the method reporting limit

Approved by Jeff Clark Date 3-27-92

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APPENDIX A

LABORATORY QC RESULTS

317 South 13th Avenue • P.O. Box 479 • Kelso, Washington 98626 • Telephone 206/577-7222 • Fax 206/636-1068

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Weyerhaeuser Paper Company	**Date Received:**	03/18/92
Project:	#PDX32451.E0	**Date Analyzed:**	03/18/92
Sample Matrix:	Water	**Work Order #:**	K921672

QA/QC Report
Duplicate Summary
Dissolved Mercury
EPA Method 7470
µg/L (ppb)

Sample Name	Lab Code	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference
H-012-001-BT-07892-XX	K1672-1	0.5	0.6	0.5	0.6	17

MRL Method Reporting Limit

Approved by _____ Date 3-27-92

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COLUMBIA ANALYTICAL SERVICES, INC.

Client: Weyerhaeuser Paper Company
Project: #PDX32451.E0
Sample Matrix: Water

Date Received: 03/18/92
Date Analyzed: 03/18/92
Work Order #: K921672

QA/QC Report
Matrix Spike Summary
Dissolved Mercury
EPA Method 7470
µg/L (ppb)

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Criteria
H-012-001-BT-07892-XX	K1672-1	0.5	10.0	0.6	11.2	106	60-140

MRL Method Reporting Limit

Approved by _____ Date 3-27-92

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APPENDIX B

CHAIN OF CUSTODY INFORMATION

Columbia Analytical Services, Inc.

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

DATE _____ PAGE _____ OF _____

PROJECT NAME WEYCO # PDX 32451.E0

PROJECT MNGR STU BROWN

COMPANY/ADDRESS CH2M HILL

2020 SW 4th AVE

Portland OR 97034 PHONE 503/224/9190

SAMPLERS SIGNATURE [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240	Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐ Pesticides/PCBs 608/8080	Total Petroleum Hydrocarbons EPA 418.1 ☐ Oregon 418.1 ☐ TPH(Gas/BTEX:5030/8015/8020 Gas ☐ BTEX ☐ TPH8015 Modified Diesel ☐ Hydrocarbon Scan ☐ TPH - HCID	TCLP Metals ☐ VOA ☐ Semi ☐ VOA ☐ Pest/ Herb ☐ Metals (total or dissolved) List Below	Cyanide	pH, Cond, Cl, SO4, PO4, F, Br NO2, NO3 (circle)	NH3-N, COD, Total-P, TKN, TOC (circle)	Total Organic Halides (TOX) 9020	Dissolved Hg 7470	REMARKS
H-017-001-BT-07892	3/16/92	1100		water	1											X	LAB FILTER

ANALYSIS REQUESTED

RELINQUISHED BY:
Signature [signature]
Printed Name John L. Childs
Firm CH2M HILL
Date/Time 3/18/92 / 1130

RECEIVED BY:
Signature Ruth Allison
Printed Name RUTH ALLISON
Firm CAS
Date/Time 3/18/92 1130

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
___ 24 hr ___ 48 hr ___ 5 day
___ Standard (~ 10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date _____

REPORT REQUIREMENTS
___ I. Routine Report
___ II. Report (Includes DUP,MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (Includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O. # C-188-92
Bill to: WEYERHAEUSER
ATTN: JIM SIMS

SAMPLE RECEIPT:
Shipping VIA: _____
Shipping #: _____
Condition: _____
Lab No.: _____

SPECIAL INSTRUCTIONS/COMMENTS:
NO FIELD FILTER ⇒ ~~LAB~~ FILTER LABORATOR
6pm Turnaround 3/18/92
NO TEAR III Requirements

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05